

Marta Peris-Ortiz · José Álvarez-García  
María de la Cruz Del Río-Rama *Editors*

# Sports Management as an Emerging Economic Activity

Trends and Best Practices

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ISBN 978-3-319-63906-2

ISBN 978-3-319-63907-9 (eBook)

DOI 10.1007/978-3-319-63907-9

Library of Congress Control Number: 2017953770

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Printed on acid-free paper

This Springer imprint is published by Springer Nature

The registered company is Springer International Publishing AG

The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

# Foreword

Dear readers:

We know that there are no Nobel Prizes for psychology or sports management. There is a Nobel Prize for economics that has often been given to economists with a more psychological or sociological profile than an economic one. And the other sports prizes that are delivered throughout the world reward, in the great majority of cases, the athletes and, at the most, the coaches. However, possibly sport as we know it today would not be possible without all the structures provided by sports management and the people who work in it.

When we turn our eyes to the first Olympic Games, we are struck first of all by how the organizers – politicians? entrepreneurs *avant la lettre*? – got this event to end disputes by transcending wars and making truces among enemies, commercial interests, different ideologies, and even interests of other cities to host such games disputing with Olympia. And, in addition, it was maintained for a long time despite all kinds of troubles, and more importantly, it was able to inspire with its reappearance at the end of the nineteenth century, becoming the most important and relevant sporting event worldwide, even though it is carried out only every 4 years.

And the organized practice of sport was maintained in the following years to the present day, evidently by the drive that human beings have toward physical activity, and toward movement, but certainly the sophistication provided by regulated sports was only possible by the intervention not only of the athletes themselves but also of the people who acted from power, politics or business, about the peoples' physical practice.

When a dear friend proposed to me to write this preface to this book on sports management that you have in your hands, the idea was very pleasing to me, since during my long career – due to my age and my academic dedication – I have approached the world of sports by addressing mainly the main players, the athletes and their coaches, but when I'm working on other interests, such as working and performance teams, I have always been worried about the managers' profiles, especially why they may or may not make it possible for these teams to work effectively.

In addition, my own experience as a manager in the complicated world of high-performance football made my interest not just scientific or academic but more personal: I feel the need to study not only how the performance teams worked efficiently but how to apply it in person so that even the smallest interventions could be effective and aimed at the right direction.

But speaking directly of this book, I must say that it is a very well-organized work, which is covering an evident need, which is to provide data and ideas in this dynamic, changing, and very demanding field, since the management of sports life is isomorphic with the practice of physical activity and sports and it is not possible to leave any corner to cover. This fact speaks very well of the work of M. Peris-Ortiz, J. Álvarez-García, and M.C. Del Río-Rama, as well as the selection and assignment of themes to different authors who contribute to the book.

Nowadays, there is a tendency for our knowledge to be obtained through two channels at the extremes of an informational dimension: either it is the result of excessively focused scientific articles – with all due respect, evidently – on a topic or is a product of the already common quick access to information sources provided by social networks and those derived from search engines in the cloud. However, a book like this helps to cover the gap between these two sources of information, with agility and strength and in a quite proper way, by providing the authors and readers with a solid and effective way to obtain information which is paused, meditated, and at the same time current and related with the professional day-to-day needs.

It should also be borne in mind that we are talking about a professional field that was very affected by the economic crisis that began around the year 2000 and which today has had to recompose itself from both the points of view of private initiative and public institutions while navigating the dangerous waters of globalization and emerging economies, usually associated with cultures other than those of the “classic” Western, European, or the Anglo-Saxon ones.

From a more practical point of view, the chapters of this book cover most of the relevant topics in sports management, both theoretically and in more specific sections, and are clearly immersed in the state of the art of the subject. Speaking more literally, it is impossible to find today a work in which more “classic” subjects – such as customer satisfaction, questionnaire design, the impact on sites of sports tourism, or customers’ segmentation regarding sports facilities – are found side by side with much more incisive and updated topics such as the sustainability of facilities, the use of new technologies and data analysis methodologies, the analysis of the global market, or the systematic analysis of the scientific production focused on sports management.

Also, for an academic person like me, who has seen – for age reasons – the growth of the field of applied sciences in sports from a psychological perspective, I must recognize that the new generations of scientists are really pushing the scholars and professionals who have a much more traditional vision and prefer to use the classic way of doing things. This is not only because of the emergence of the “new” technologies but also because sport today constitutes a puzzle that needs bright and pretty awake minds to be able to comprehend it globally.

To finish this preface, I want to recommend warmly this book to all interested readers, and I will close it with a quote from the creator of that great tool called Dropbox, Drew Houston, who says that “reading a book about management is not going to make you a good manager any more than a book about guitar will make you a good guitarist, but it can get you thinking about the most important concepts.” Dear readers, please enjoy this book and give support to the sports managers’ job. Without them, perhaps we could not have well-organized sports today.

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Alexandre García-Mas, Ph.D.

# Preface

Sport, at present, is the raw material of a large and complex international business that is becoming one of the largest industries in the world with an enormous potential and influence on the economy of countries (Foster et al. 2006), becoming an important consumer product. In this regard, some studies such as the one carried out by a global management consulting firm “Winning in the Business of Sports” (A.T. Kearney 2014) and experts, among them Gavin Llewellyn, chairman of the Intellectual Property Commission of the International Union of Lawyers (IUL), estimate that the global sport industry generates 700 billion dollars (632 billion euros) each year, which represents 1% of the world’s gross domestic product (GDP) in 2015 (Sport 2015).

According to Trenberth (2012:4), the sport industry “is the market in which the businesses and products offered to its buyers are sport related and may be goods, services, people, places, or ideas.” In this market coexist people, activities, businesses, and organizations involved in the production, facilitation, promotion, or organization of any activity or experience focused on sports (Trenberth 2012). The sport industry segment model presented by Pitts et al. (1994:18) identifies three segments by product and buyer type and the different categories of products belonging to different economic sectors in each of them: sport performance segment (sport performance as offered to the consumer as a participation or spectatorial product), sport production segment (those products beaded or desired to produce or to influence the quality of sport performance), and sport promotion segment (those products offered as tools to promote the sport product). In this same line, Trenberth (2012:4) considers the following as segments of the sport business industry: sports tourism, sporting goods, sports apparel, amateur participant sports, professional sports, recreation, high school and college athletics, outdoor sports, sport marketing firms, sports sponsorship industry, and sport-governing bodies. Both types of segmentation of the sport industry allow to observe that the sports activity generates and offers numerous business opportunities, taking into account its two dimensions: industrial and economic.

All these businesses that are part of the different segments of the sport industry, either public or private sports entities that provide sports services, as well as



companies related to sport (Retar et al. 2016), and all related management, financial, marketing, and other administration and business goods and services (Fielding et al. 1991), must be managed efficiently in order to be successful. In this context, the concept of sports management arises, which refers to a field of knowledge that focuses on the management, planning, and organization of organizations whose main objective is sport. Thus, professionals dedicated to sports management arise, who are responsible for activities such as finance, marketing, leadership, management of public and private facilities, and event management, among other activities, professionals prepared for the changing and emerging demands of sport business and related industries.

In this sense, the human resources that work in the sport sector are reaching a high degree of professionalization, emerging specialized managers in certain areas of the sport industry such as sport marketers in charge of the process of buying or selling athletes, teams, sponsors, or brands. In the sports field, sport scouts are responsible for assessing both amateur and professional athletes, sports facilities managers manage the daily operations and organize maintenance and other activities needed for effective function, sports managers direct the overall organization and scheduling for sports organizations and individual athletes, and athletic directors provide leadership in all types of sports organizations from high school to professional college sports teams (Masteralexis et al. 2011). To this respect, Marcu and Buhas (2014:679) consider that “Sports management is a separate branch in the science of sports, because it meets the basic requirement, which is to have an own research field and uses scientific methods in organizing its object of activity.”

Under this approach, “Sport management is the study and practice of all people, activities, businesses, or organizations involved in producing, facilitating, promoting, or organizing any sport-related business or product” (Trenberth 2012:3). In this book, the topics covered are sports management, sports economics, financing of sports organizations, financial sustainability, the profile of the client in sports organizations, perceived quality in the sport service, sport and illegal behavior, sustainability in sports, sustainability performance, reliability of game systems, and sports tourism, among others.

The book is divided into 17 chapters containing original contributions related to sports management. In the first contribution (Chap. 1), the objective has been to perform an analysis of the scientific production related to sports management through the development of a bibliometric study and a longitudinal statistical analysis of the articles published in journals indexed in the multidisciplinary database Scopus (Elsevier) until 2015. This revision of the literature allows us to know and summarize the situation of research within this specific area of knowledge. Chapter 19 is to provide a current picture of the scientific literature relating to quality management in the sports field in order to know who, what, where, how, and how much has been researched and the main lines of research followed in this field.

Following are several chapters that approach the subject from an economic-financial approach. Chapter 2 provides an analysis of the link between economic resources and sporting performance, applied to the case of sports in Turkey. The authors try to answer the question: has the amount of available financial resources

become the predominant factor in sporting clubs' successes and that of a country's national team? And they see that the hypothesis of a direct explanatory influence is not always valid and that other factors should be taken into consideration. In Chap. 9, the authors study the financial sustainability (strategies) of local associations for youth and amateur sports in Portuguese amateur soccer teams, and in Chap. 10, the authors aim to show a different point of view on one of the most famous sports in the world: football. The approach that we want to show is the financial and economic state of each team, and the results show that majority of the clubs cannot control their financial status, sometimes due to unrealistic goals and other times due to lack of management and financial control. It leads to an economic downturn which is also supported by the wrong distribution of TV rights. Finally, Chap. 11 discusses whether investing in shares of European football clubs is an alternative investment. The analysis shows that these alternative assets could be included in an investment portfolio with the aim of diversifying them, thereby reducing their overall risk.

On the other hand, there are several chapters included in the book that follow an approach related to the management of sports facilities. In this regard, the authors carry out a more global analysis of all the participants of the organization (The Customer 360° Method (C360-M) guides). This systematization of the evaluation allows the manager to close the management cycle and the organization to progress in future planning and execution. Chapter 5 presents a case study which evaluates the perceived quality of service and analyzes the satisfaction they experience with the service received, using the sports organization perceptual scale (EPOD) as a measuring instrument. The results show that there is a high correlation between perceived quality and satisfaction. In Chap. 6, under the framework of institutional theory, the role of legitimacy on the soccer clubs' activity is studied. The results of this study suggest that cognitive and emotional legitimacy are essential for the institutionalization of soccer clubs, even more than other types of legitimacy such as pragmatic or regulative legitimacy, and also suggest a relationship between economic performance and club legitimacy. In the last three chapters that follow this approach, sustainability performance in sports facilities management (Chap. 8) in organizations like FIFA and UEFA is analyzed, as well as in what way to assess and apply presently a specific approach designated as dynamic management system for sustainability in sports facilities (DM3S). Identifying what role the sports facilities have in recognizing sustainability and beginning to search for a broader view and more efficient approach can be multidimensional and must consider life cycle. And in Chap. 17, the authors examined the subjective and objective measures of loyalty toward a private fitness center by sociodemographic and behavior variables. This study suggests a difference in the subjective perception of the clients and their behavior with regard to the purchase of service. Chapter 18 analyzes the various sports management types applied by town/city councils and presents the practical case of the city of Valencia.

Another of the approaches addressed by the researchers is that of sports tourism of recent interest. Thus, Chap. 3 addresses the issue of sports tourism, and the authors examine the relationship between residents' posture toward tourism and the

degree of acceptance of sports tourism in comparison to sun and beach tourism, maritime tourism (sailing and cruises), and nature tourism in the case of Punta del Este (Uruguay). The main conclusion is that there is an important relationship between general posture and the acceptance of sports tourism, and this implies that by improving residents' general posture, the enthusiasm for developing sports tourism also increases. And in Chap. 15, the authors analyze by profiling the typologies of nature sports organizations in Portugal, and five typologies were identified, based on their supply, the type of organization, and the organization of the activities.

Finally, there are several chapters dealing with different topics of great interest today. Chapter 7 explores and identifies the dynamics of doping within sports disciplines and the mechanisms that cause its growth with the intent to understand whether there are substantial differences in the demand for doping among various sports disciplines. Chapter 12 investigates the structure of game schemes, including their composition and the relationship among the athletes that compose them, and in Chap. 14, the authors provide a measure of the differences in sports activities among Italian regions. Chapter 16 provides an observational methodology for soccer match analysis based on PageRank centrality. The authors state that their research is to be a first approach in generalizing the PageRank algorithm to a soccer team's management, which could be extrapolated to other disciplines. In Chap. 13, the paper describes a computer technology aiming to automate the preparation, storage, and use of information, knowledge-related diagnosis, choice of treatment, and recovery rehabilitation to the development of decision support systems in sports traumatology. Finally, in Chap. 20, the concepts of leadership and personal branding relating to the sports field were analyzed, specifically the implications on coaches and managers. The research concludes that these coaches are unrivaled in relation to their leadership and personal branding style: Jose Mourinho, as a tactician and motivator of players, prioritizes short-term results; Pep Guardiola strategic dimensions, ongoing learning, and emphasis on the importance of aesthetic soccer; and Vicente del Bosque the creation of a team with a good working environment and interpersonal skills, highlighting the unity and loyalty of the team above and beyond the short-term results.

This book aims to be an essential reference and discussion manual, complementing existing ones, for the academic and business context of the sport industry and sports management. Also, it is essential reading for all students of sports management and sport business. You can also find a set of ideas for reflection in the area of sports management that can lead to further studies.

Finally, the editors wish to express their deep gratitude to all those who have contributed to this publication.

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# Chapter 1

## Sport Management Analysis of Scientific Production in Academic Journals

María de la Cruz Del Río-Rama, Amador Durán-Sánchez, Marta Peris-Ortiz, and José Álvarez-García

**Abstract** At present, physical activity and sport have acquired extraordinary social and economic importance, being considered an important driver of development by involving, directly and indirectly, a large number of activities belonging to different economic sectors. Precisely because of its transversal nature, it is necessary to use appropriate management methods, which are understood as the set of activities and means necessary to achieve an optimal level of operation and quality in the sporting activity, using the resources available in a rational way to obtain the maximum results. Thus, the objective of this chapter has been to perform an analysis of the scientific production related to sport management through the development of a bibliometric study and a longitudinal statistical analysis of the articles published in journals indexed in the multidisciplinary database Scopus (Elsevier) until 2015. The analysis of the 393 documents obtained shows that although the first articles appeared in the early 1980s, it was not until 2008 when interest in this discipline experienced rapid growth, especially in countries such as the United States, Spain, and Australia. The studies are within the areas of Business and International Management, Strategy and Management, and Marketing and are published in

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specialized journals of the sport management sector: *International Journal of Sport Management and Marketing*, *Journal of Sport Management*, and *Sport Management Review*.

**Keywords** Sport management • Scopus • Literature review • Bibliometric study • Service management

## 1.1 Introduction

The human being is organized into groups and creates entities or companies to achieve objectives that could not be achieved individually or that would be more complicated to obtain, being the coordination of individual efforts around a common project necessary.

Management has its origins in the early stages of human history. Since ancient times, work related to planning, organization, management, or control has been carried out to optimize resources in different areas of life: social, cultural, health, economic, educational, military, and even sport.

The simplicity that characterized all forms of sports practice a few decades ago contrasts with the complexity and extraordinary relevance of sport in today's society. Its important economic dimension, which is difficult to quantify accurately, serves as an engine of development by involving, directly and indirectly, a large number of activities belonging to different industries, thus highlighting the transversal nature of the sporting activity and forming a system that needs to respond efficiently and satisfactorily to a growing demand. Organizations, both public and private, responsible for the development of sports practice, need participation rules that will allow them to coordinate the resources available with the aim of considering and offering activities. At the same time, they need tools capable of evaluating and analyzing whether these activities have achieved the objectives pursued, seeking to improve the quality of the service and to know the needs and satisfaction level of the users or customers of their organization.

Sports practice, individually or collectively, can be a legitimate source of job creation, wealth, and well-being, whose proper exploitation is of great importance in combating youth unemployment and social exclusion. Forty-one percent of Europeans do sport at least once a week and 48% engage in some kind of physical activity (dancing, gardening, etc.), while 30% do not engage in any type of activity (Comision Europea 2014). In Europe, sport-related employment, that is to say, that which takes place in companies engaged in sporting activities, such as the management of facilities, the activities of clubs and gyms, or the manufacture of sporting goods, and that which relates to the occupations of sportspersons, coaches, or sports instructors, amounted in 2015 to 1,626,300 people, which represents 0.74% of the total European working population (Eurostat 2016).

Given the growing interest in sports and sport management, it is necessary to compile and analyze the academic work published in recent years. In this way, the objective of this chapter has been to present an x-ray of the current situation of research relating to the sport management research field through its bibliometric study, that is to say, by using mathematical and statistical methods to evaluate scientific production in order to determine trends and identify areas of research in development or regression (Spinak 1996).

All bibliometric analysis begins with the choice of one or several databases and the value in our work will depend largely on their suitability and coverage of the study area (Bordons and Zulueta 1999). Thus, in order to reach the proposed objectives, the documents published in journals indexed within the multidisciplinary database Scopus (Elsevier) have been reviewed, which provides an overview of international research production, becoming an ideal instrument for the approach to bibliometric studies. Through an advanced search of terms with a time limit in 2015, a set of 273 articles that constitute the empirical basis of the study were selected and were later processed through the bibliographic manager RefWorks.

This paper is structured into four main sections. In the first place, and after this introduction, the academic literature is reviewed in order to establish the theoretical framework of research related to the sport management field. A second point describes both the sources and the methodological process used to obtain the references that form the basis of our study. Subsequently, in the third part, the main results obtained with the calculation of bibliometric indicators are shown and discussed. Finally, in the fourth and last section, we present the main conclusions reached, as well as the limitations of the research.

## 1.2 Theoretical Framework

Following Da Rocha and Da Cunha Bastos (2011), sport management is described as the application of management principles to sports organizations, “management” understood as the process of working with human and material resources, in order to achieve the objectives of organizations effectively (Bateman and Snell 1996), and “organization” understood as a social entity coordinated with identifiable boundaries and operating continuously over time to achieve a set of common goals (Robbins 1997).

A sports organization offers products (goods or services) that relate to sports or physical exercise within the sports industry (Slack and Parent 2006). Chelladurai (2009) points out that in order to define sport management from the concept of sports organizations, a more precise definition is required, separating sports organizations (clubs, gyms, professional sports teams, sports schools, federations, confederations), whose main objective is the production and marketing of sport-related services for participants and/or spectators, from organizations that use sport to promote their own products (sports equipment manufacturing or advice companies) dealing, for example, in the production of footwear and clothing, the transmission of events, or legal advice to sportspersons.

In García and Fernández (2009: 14), we find that the Council of Europe defines sport management as “the process by which the responsibility of planning and regulation is assumed within an organization of resources – people, events or facilities – in order to achieve specific objectives,” being analysis, planning, decision-making, action, control, and evaluation the phases of the management process (Consejo Superior de Deportes (The Sports Council) 1995). While Peiró et al. (1995) state that sport management would include planning, organization, evaluation, and control of activities that take place in an organization. For other authors such as Mestre (2006), planning becomes the main tool of sport management; hence, they are sometimes used interchangeably.

The Commission on Sport Management Accreditation (COSMA 2010), the body responsible for the recognition of sport management courses at US universities, establishes seven key contents regarding sport management: management and leadership (Strigas and Jackson Junior 2003), marketing (Trail and James 2001), legal aspects (Kalamadi 2012), ethics (Zakus et al. 2007), finance (Crompton 1995), communication (O’Boyle 2014), and sociocultural aspects (Thomas and Dyal 1999).

Most of the studies that analyze the research content are quantitative, that is, they have used quantitative strategies to collect and analyze the data, being management and leadership and sports marketing the areas that have received the most attention from researchers (Da Rocha and Da Cunha Bastos 2011).

As a field of study, sport management is a relatively new field, as shown by the fact that the first journals date back to the 1980s, while other disciplines have journals since the first half of the twentieth century. *Journal of Sport Management* was the first to be launched in 1987 by members of the North American Society for Sport Management (NASSM), which had been formed 2 years before, becoming in a few years the main source of knowledge dissemination in the area (Parkhouse and Pitts 2001). There are currently more than 100 publications related to sport management (Shapiro and Pitts 2014), but to date only a handful of them have been examined.

In the first studies carried out, Parkhouse et al. (1982) in their review of 336 doctoral theses on sport management presented at *Dissertation Abstracts International* between 1950 and 1980 found that most of the papers focused almost exclusively on physical education and athletics at school level. Lambrecht (1991), during the analysis of 45 articles published in the *Journal of Sport Management* in the period 1987–1990, highlighted that 35% of the articles dealt with school or university sports, while the remaining 65% covered a wide range of subjects. Paton (1987) conducted a review of 122 studies included in *Completed Research in Health, Physical Education, and Recreation* and found that 60% focused on the university environment. More recently, studies based on specialized journals in sport management focus on several aspects (Table 1.1).

The analysis of the existing literature referring to sport management shows studies that go beyond the analysis of the content of specialized journals. This is the case of the work presented by Mowrey (2003), examining the conference proceedings published between 2000 and 2002 for the NASSM, the European Association of Sport Management, and the Sport Management Association of Australia and New

**Table 1.1** Objectives of studies based on specialized journals in sport management

| Objectives                      | Journals   | References   |
|---------------------------------|--|--|
| Trends in content               | <i>Sport Marketing Quarterly</i>   | Peetz and Reams (2011)   |
| Literature review               | <i>Journal of Sport Management</i><br><i>Journal of Sports Economics</i><br><i>Journal of Legal Aspects of Sport</i> | Pitts and Pedersen (2005)<br>Mondello and Pedersen (2003)<br>Gordon and Yoh (2006) |
| Research method                 | <i>Several Journals</i>  | Balduck et al. (2004)  |
| Statistical analysis techniques | <i>Sport Marketing Quarterly</i><br><i>Journal Sport Management</i><br><i>Int. Journal of Sport Management</i>       | Quarterman et al. (2005)<br>Quarterman et al. (2006a)<br>Quarterman et al. (2013)  |
| Collaboration between authors   | <i>Several Journals</i>  | Quatman and Chelladurai (2008)   |
| Sports categories               | <i>Journal of Sport Management</i>   | Han et al. (2008)  |
| Nonresponse error               | <i>Journal of Sport Management</i>   | Kent et al. (2009)   |
| Authors' contributions          | <i>Journal of Sport Management</i>   | Quarterman et al. (2006b)  |
| Citation analysis               | <i>Several Journals</i>  | Shilbury (2011)<br>Ciomaga (2013)  |

Source: Authors' own work based on Pitts et al. (2014)

Zealand, or the one published by Pitts and Danylchuk (2007), who left behind articles and proceedings to provide a content analysis of textbooks in sport management.

### 1.3 Methodology

This section summarizes the process followed in the development of the bibliometric analysis of scientific production on "Sport Management" collected in the Scopus database of access through the subscription of the University of Extremadura. The objective is to make a descriptive analysis of the articles related to the area of study and not an evaluation of its content quality.

#### 1.3.1 Scopus

Since access to the entire scientific production is an unreachable goal (Arguimbau Vivo et al. 2013) and all bibliometric analysis is limited by availability, relevance, and reliability of information (Rueda et al. 2007), the choice of the database, from which the information will be obtained to carry out this analysis, is a vitally important aspect that will determine its quality (Norris and Oppenheim 2007).

SCOPUS, created by Elsevier in 2004, is the main multidisciplinary bibliographic database with around 53 million references published in more than 21,000

**Table 1.2** Classification of thematic areas in Scopus

| Subject area                      | Subject area classifications   |
|-----------------------------------|--|
| <i>Health sciences</i><br>(32%)   | Medicine; nursing; veterinary; dentistry; health professions; multidisciplinary  |
| <i>Life sciences</i><br>(15%)     | Agricultural and biological sciences; biochemistry, genetics and molecular biology; immunology and microbiology; neuroscience; pharmacology, toxicology and pharmaceuticals; multidisciplinary       |
| <i>Physical sciences</i><br>(30%) | Chemical engineering; chemistry; computer science; earth and planetary sciences; energy; engineering; environmental science; material science; mathematics; physics and astronomy; multidisciplinary |
| <i>Social sciences</i><br>(23%)   | Arts and humanities; business, management and accounting; decision sciences; economics, econometrics and finance; psychology; social sciences; multidisciplinary                                     |

Source: [www.elsevier.com](http://www.elsevier.com)

peer-reviewed scientific journals (Falagas et al. 2008). It has intelligent tools useful for tracking, viewing, and analyzing citations since 1996 and includes 390 commercial publications, 370 series of books, 5.5 million papers, 25.5 million patents, or 376 million web pages. The journals are classified into 295 thematic categories, grouped into 27 areas within the four knowledge blocks (Table 1.2): Health Sciences, Life Sciences, Physical Sciences, Social Sciences and Sciences, becoming an essential instrument for the analysis of any discipline and whose advantages and benefits for this type of study have been analyzed and demonstrated in studies such as those by Goodman and Deis (2005), Bar-Ilan (2010), Escalona Fernández et al. (2010), and Leydesdorff (2012), among others. Its ability to manage bibliographic references and to quantify the citations received allows evaluating the scientific activity of a journal, the performance of an institution, or the international presence of an author, providing a panorama of the world research production in the fields of science, technology, medicine, social sciences, and arts and humanities.

### 1.3.2 Tracking Methodology

Following the scheme of similar studies, in the development of bibliometric indicators only articles published in scientific journals are analyzed, as they are the main means of transmitting the results of an investigation (Maltrás-Barba 2003) and constitute a representative sample of the academic activity at international level (Benavides-Velasco et al. 2011).

In order to delimit the results of the search in the sport management field, we chose to use the search equation mode. This variety has the advantage of reaching journals classified within all thematic areas of knowledge resulting in more extensive search (Corral and Cánoves 2013).

Search Equation: (TITLE("Sport\* managem\*") OR KEY("sport\* managem\*")) AND DOCTYPE(ar) AND PUBYEAR < 2016

With the documents obtained by means of this equation, the ad hoc database was constructed to analyze each one of the necessary variables to obtain the bibliometric indicators. After cleaning up the documents unrelated to the study area, the final result was 273 articles published in 118 journals and written by 473 authors, data that were processed with the RefWorks bibliographic reference manager.

## 1.4 Analysis and Discussion

### 1.4.1 Documents

Through the process of searching for papers carried out in Scopus, a total of 393 documents related to sport management were located and selected between 1979 and 2015 (Fig. 1.1), of which 61 (15%) were conference papers, 33 (8%) reviews, 13 (3%) books or book chapters, and 13 (3%) other formats. The remaining 273 (69%) turned out to be articles which make up the *ad hoc* empirical basis from which the bibliometric analysis was performed.

Price (1956) found that the growth of scientific information was exponential and occurred at such a rapid rate that every 10–15 years the existing global information doubled (Price's law). However, as shown in Fig. 1.2, each discipline undergoes its own evolution through several stages: Precursors (first publications); Exponential growth (becomes research focus); Linear growth (growth slows down, review and knowledge file).

As shown in Fig. 1.3, the sport management field is in the exponential growth phase, adjusting the cumulative production function to an exponential equation with  $R^2 = 0.9718$ .

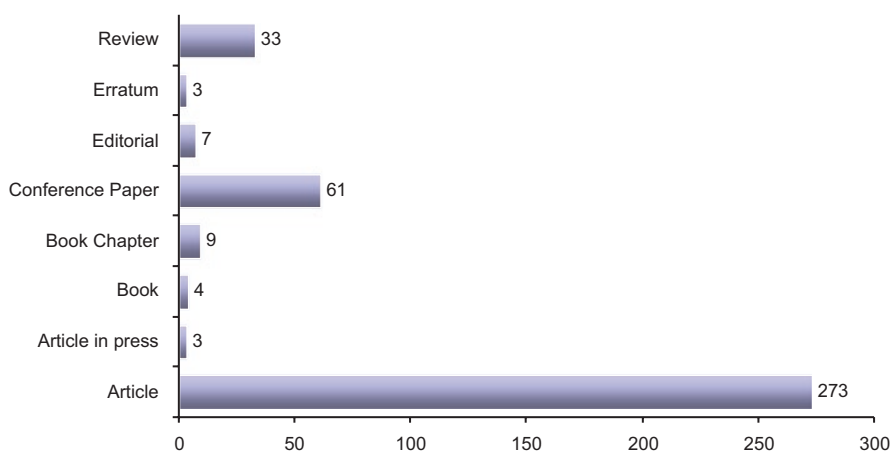


Fig. 1.1 Documents located in Scopus related to sport management (Source: Own elaboration)

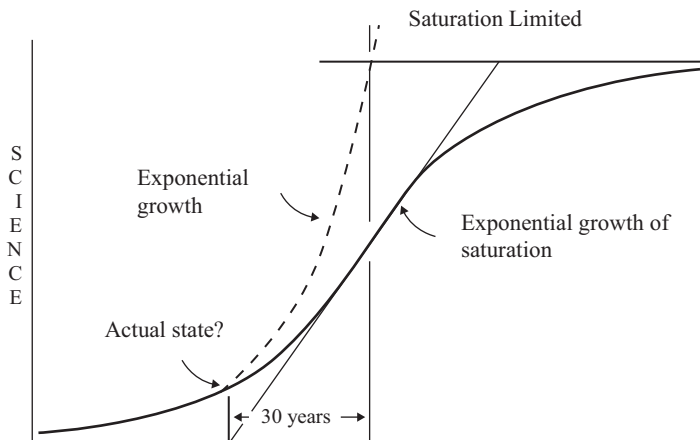


Fig. 1.2 Graphical representation of Price's growth law (Source: Valencia et al. (2016))

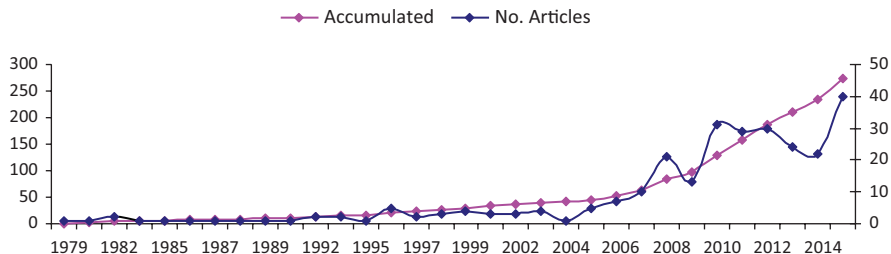


Fig. 1.3 Evolution of articles published and their accumulated (Source: Own elaboration)

In terms of the number of citations that the articles receive within Scopus (Table 1.3), only 3 articles are cited on at least 40 occasions: *Decision-Making in Sport Management Based on the OWA Operator* (Merigó and Gil-Lafuente 2011); *The Status and Future of Sport Management: A Delphi Study* (Costa 2005); *Can Gender Equity Be More Equitable? Promoting an Alternative Framework for Sport Management Research, Education, and Practice* (Shaw and Frisby 2006).

### 1.4.2 Authors

Productivity of authors (both primary and secondary) is calculated based on the number of articles published by each of them. Following the criteria proposed by Lotka (1926), we can classify the authors according to their productivity into:

- Small producers: Authors who produce a single article
- Medium producers: Authors who produce between two and nine articles
- Large producers: Authors who produce 10 or more items

**Table 1.3** Ranking of the most popular articles

| Title   | Authors  | Year | No. Dating |
|---|--|------|------------|
| <i>Decision-Making in Sport Management Based on the OWA Operator</i>  | Merigó, J.M.; Gil-Lafuente, A.M.                                   | 2011 | 44         |
| <i>The Status and Future of Sport Management: A Delphi Study</i>  | Costa, C.A.  | 2005 | 43         |
| <i>Can Gender Equity Be More Equitable? Promoting an Alternative Frame for Sport Management Research, Education, and Practice</i> | Shaw, S.; Frisby, W.   | 2006 | 40         |
| <i>Sport Management Must Show Social Concern as It Develops Tenable Theory</i>  | Zeigler, E.F.  | 2007 | 38         |
| <i>From the Locker Room to the Board Room: Changing the Domain of Sport Management</i>  | Slack, T.  | 2010 | 35         |
| <i>Satisfaction, Quality and Perceived Value in Spectators of Athletics</i>   | Calabuig, F.; Burillo, P.; Crespo, J.; Mundina, J.J.; Gallardo, L. | 2010 | 32         |
| <i>The Roles and Responsibilities of a Change Agent in Sport Event Development Projects</i>                                       | Schulenkorf, N.  | 2010 | 29         |
| <i>Gendered Managerial Discourses in Sport Organizations: Multiplicity and Complexity</i>   | Knoppers, A.; Anthonissen, A.                                      | 2008 | 29         |
| <i>Scheduling Sports Competitions on Multiple Venues</i>  | Urban, T.L.; Russell, R.A.   | 2003 | 28         |
| <i>From Outside Lane to Inside Track: Sport Management Research in the Twenty-First Century</i>                                   | Chadwick, S.   | 2009 | 28         |

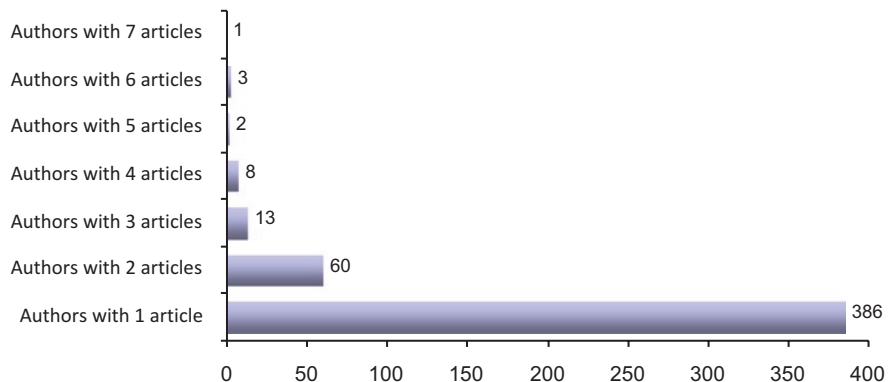
Source: Own elaboration

In the field of sport management, there are no large producers since the author with the highest number of published articles has only 7. Following Lotka, 18.39% (87) of the authors are medium producers, while 81.61% (386) are considered small producers having a single article (Fig. 1.4). The average productivity per author was 1.29 articles.

If we observe Table 1.4, the following authors stand out for their productivity: Morales-Sánchez, V. (7); O'Reilly, N.J. (6); Parkhouse, B.L. (6); Shilbury, D. (6). As Fig. 1.5 shows, 193 articles (70.7%) are written by more than one author, and 159 (58.2%) signed by 2 or 3 authors. The collaborative index, the number of signatures on average, for the whole period was 2.24.

By country (Table 1.5), the United States stands out with practically one third of the authors affiliated to some center of the country (72 centers – 141 authors – 190 authorships). It is followed by Spain (23 centers – 60 authors – 93 authorships) and Australia (15 centers – 51 authors – 73 authorships) as the most relevant countries within the academic literature indexed in the Scopus database on sport management.



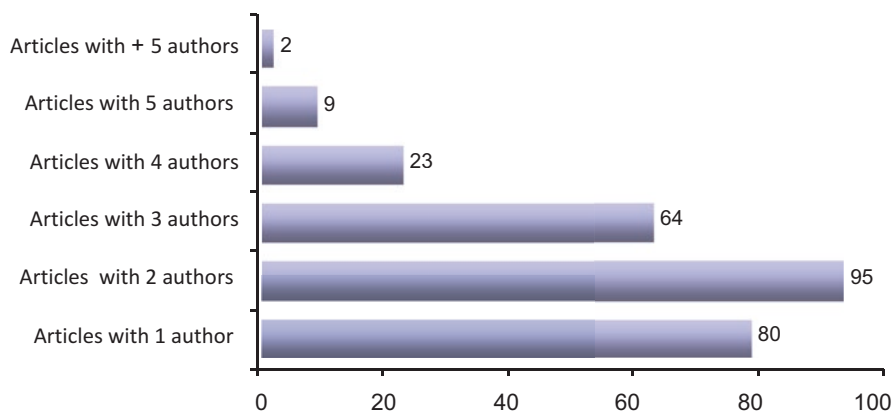


**Fig. 1.4** Productivity of authors of sport management articles in Scopus (Source: Own elaboration)

**Table 1.4** Ranking of the most prolific authors

| Author              | Authorships | Lotka index | h-index |
|---------------------|-------------|-------------|---------|
| Morales-Sánchez, V. | 7           | 0.85        | 4       |
| O'Reilly, N.J.      | 6           | 0.78        | 12      |
| Parkhouse, B.L.     | 6           | 0.78        | 5       |
| Shilbury, D.        | 6           | 0.78        | 14      |
| Moore, M.E.         | 5           | 0.70        | 3       |
| Parks, J.B.         | 5           | 0.70        | 8       |

Source: Own elaboration

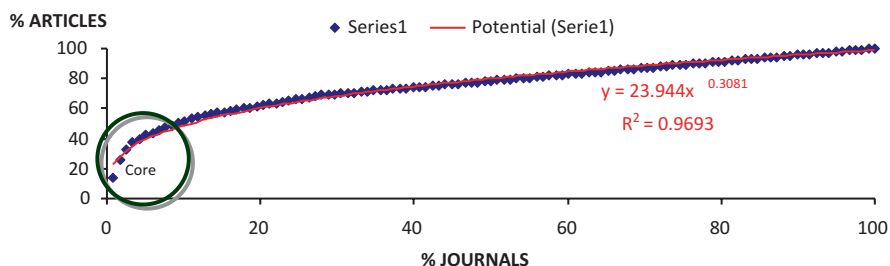


**Fig. 1.5** Authors by article (Source: Own elaboration)

**Table 1.5** Affiliation of authors by country

| Country        | No. Authors | %     | No. Authorships | %     | No. Centers | %     |
|----------------|-------------|-------|-----------------|-------|-------------|-------|
| United States  | 141         | 29.81 | 190             | 31.05 | 72          | 30.25 |
| Spain          | 60          | 12.68 | 93              | 15.20 | 23          | 9.66  |
| Australia      | 51          | 10.78 | 73              | 11.93 | 15          | 6.30  |
| Canada         | 32          | 6.77  | 42              | 6.86  | 14          | 5.88  |
| United Kingdom | 25          | 5.29  | 26              | 4.25  | 19          | 7.98  |
| Germany        | 16          | 3.38  | 20              | 3.27  | 9           | 3.78  |
| China          | 14          | 2.96  | 14              | 2.29  | 9           | 3.78  |
| Portugal       | 12          | 2.54  | 13              | 2.12  | 7           | 2.94  |
| Belgium        | 10          | 2.11  | 17              | 2.78  | 2           | 0.84  |
| New Zealand    | 10          | 2.11  | 11              | 1.80  | 4           | 1.68  |

Source: Own elaboration



**Fig. 1.6** Lorenz curve and Bradford core (Source: Own elaboration)

### 1.4.3 Journals

The 273 articles selected within Scopus on sport management were disseminated through a total of 118 journals, 85 of them (72%) published a single paper (31% of the total), and only 33 (28%) included two or more papers.

According to the Bradford (1934), a small number of journals group most of the articles published related to an area, a fact that helps us to identify the most used journals (core) by researchers for the dissemination of their papers (Fig. 1.6). The Minimum Bradford Zone (MBZ) is defined as the number of articles equal to half the amount that appears in the last range of the list (usually those producing a single article) (Spinak 1996):

$$MBZ = \frac{NR1a}{2}; \quad MBZ = \frac{85}{2}; \quad MBZ = 42.5 \text{ where}$$

MBZ: Minimum Bradford Zone

NR1a: Total journals that produce an article

After calculating the value of MBZ, from the ranking of journals sorted in the descending order of productivity, the MBZ is made up of the most productive

**Table 1.6** Ranking of the most productive journals indexed in Scopus with articles on sport management

| Journals   | No. Articles | %     | SJR   |
|--|--------------|-------|-------|
| <i>International Journal of Sport Management and Marketing</i>                           | 39           | 14.29 | 0.183 |
| <i>Journal of Sport Management</i>   | 31           | 11.36 | 0.604 |
| <i>Sport Management Review</i>   | 20           | 7.33  | 0.805 |
| <i>Quest</i>   | 13           | 4.76  | 0.487 |
| <i>Cuadernos de Psicología del Deporte</i>   | 6            | 2.20  | 0.266 |
| <i>European Sport Management Quarterly</i>   | 6            | 2.20  | 0.513 |
| <i>Gender in Management</i>  | 5            | 1.83  | 0.359 |
| <i>Revista Internacional de Medicina y Ciencias de la Actividad Física y del Deporte</i> | 5            | 1.83  | 0.232 |
| <i>International Journal of Sport Policy</i>   | 4            | 1.47  | 0.895 |
| <i>Journal of Hospitality, Leisure, Sport and Tourism Education</i>                      | 4            | 1.47  | 0.353 |
| <i>Sex Roles: A Journal of Research</i>  | 4            | 1.47  | 1.182 |
| <i>Sports, Business and Management</i>   | 4            | 1.47  | –     |
| <i>Sportwissenschaft</i>   | 4            | 1.47  | 0.164 |

Source: Own elaboration

journals whose sum of articles was equal to the value of MBZ (43). In our study, MBZ consists of only two journals (Table 1.6), *International Journal of Sport Management and Marketing* (39) and *Journal of Sport Management* (31), which together grouped 25.65% of the total number of articles.

The thematic classification of documents that the Scopus database performs according to the areas to which the journals in which they are published belong to (Fig. 1.7) shows a wide variety of areas (64), which include articles on sport management, highlighting 5 out of the rest: Business and International Management (72); Strategy and Management (72); Marketing (70); Management Science and Operations Research (66); and Physical Therapy, Sports Therapy and Rehabilitation (62).

#### 1.4.4 Keywords

The correct selection of search terms is an essential issue when locating documents related to a specific research field. The analysis of keywords used by the authors of articles indexed in Scopus on sport management (Fig. 1.8) shows that these words are precisely the most frequently repeated (57.14%) followed by far by Marketing, Services, Resource, Gender, or Organization.



## 1.5 Conclusions

The literature review consists of evaluating existing information (sources) in order to know and summarize the situation of the research within a specific area of knowledge. Based on the analysis of the results, and the extensive literature consulted, we can draw a number of useful ideas for future researchers in the field of sport management:

- (a) As in other areas, the chosen mode by researchers to convey their knowledge is the article published in scientific journals. After an initial phase with few studies, publications on sport management are in a stage of exponential growth arousing greater interest by the authors since 2008. The existence of articles that have received more than 30 citations corroborates precisely this interest.
- (b) In the field of sport management, there are no authors considered as large producers (with more than 10 articles). Most of them have published a single article, causing the productivity index to be 1.29 articles per author. On the other hand, the analysis of coauthorship shows a high percentage of articles signed by two or more authors, which favors receiving a larger number of citations (Granda-Orive et al. 2009).
- (c) By countries, the United States stands out over the rest with almost a third of the authors affiliated to some center of this country, mainly university centers. It is followed by Spain, Australia, and Canada as the most relevant countries within the academic literature indexed in the Scopus database on sport management.
- (d) Journals considered as references with a larger number of published documents and which make up the so-called Bradford core were identified by the Bradford law. In the area of sport management, this nucleus is constituted only by two journals, *International Journal of Sport Management and Marketing* and *Journal of Sport Management*, which together group 25% of the total number of articles.
- (e) Thematic classification of documents, depending on the areas to which the journals where they are published belong to, reveals a great variety of fields in which the articles are included and prove the transversal nature of the sport management concept. The following areas stand out: Business and International Management; Strategy and Management; Marketing; Management Science and Operations Research; and Physical Therapy, Sports Therapy and Rehabilitation.
- (f) It is precisely the terms related to sport and management that are most frequently repeated as keywords of the articles. It is advisable to use them to locate documents within Scopus by means of the advanced search of terms. Other words that appear a great number of times are Marketing, Services, Resource, Gender, or Organization.

In summary, the publication of scientific articles related to sport management has experienced significant growth at international level since 2008, with the United States, Spain, and Australia at the forefront of research. As in other fields of knowledge, the instrument used by the authors to disseminate their work is the scientific

journal, which can be classified into a wide variety of thematic categories due to the transversal nature of sport management.

When interpreting the results of the bibliometric study, the limitation of choosing a single source of information (Scopus) and defining a specific search profile should be taken into account. On the other hand, it was not intended to carry out an analysis of the quality of the content of the articles, which can be studied in later research, but a descriptive-quantitative analysis of the work related to the field of sport management. In order to expand this chapter, it would be interesting to examine indexed documents in other databases, in addition to considering the possibility of including comparative analyzes among them or to carry out further analysis on citations.

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## Chapter 2

# Has the Amount of Available Financial Resources Become the Predominant Factor in Sporting Clubs' Successes and That of a Country's National Team? The Case of Turkish Basketball Clubs

Cem Cetin and Gary Tribou

**Abstract** If we compare the economic rankings of countries to that of their national sports results, we notice that there is a strong correlation between the two. Indeed, the top 10 ranked economically find themselves in part, but only in part, at similar rankings on the sporting level. India and Brazil do not transform their economic performances on the sporting chart; Russia and Australia are better ranked on the sporting scale than from an economic point of view. We must note that the idea that sporting success principally means economic investment is a fairly recent observation and one that should be nuanced if we take the example of soccer in which clubs and national teams from smaller countries like the Netherlands or Portugal have excelled even when faced with large, economically strong nations like Germany, Great Britain, or France. It seems that the market's globalization as well as the sporting competition is a part of the explanation because it necessitates more and more cumbersome investments. But, public funding no longer suffices to finance sporting events and it is sometimes badly used by bureaucrats who lack expertise. As a result, the solution ends up being private funding from renowned enterprises that are efficient on the competitive markets. However, the funding capacity of enterprises is directly linked to the economic conjuncture of countries where the funding capacity develops. Turkey (classified 17th in the world on an economic scale and 41st on a sporting scale at Rio in 2016) constitutes a good illustration of this complex relationship between economic means and sporting results. The results of Turkey's basketball clubs attract attention. The qualification of the Fenerbahçe

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club during the last three ULEB Euroleague Final Four (2015, 2016 and 2017) and its Euroleague Final Four's title at the last edition (2017), or moreover Galatasaray's victory in the ULEB Eurocup (2016) represent exceptional successes that surprise sports analysts. However, behind these sporting achievements, privately funded money appears, given by sponsors who financed the construction of new sports halls and the recruitment of players on an international level. The sporting expenses of Turkish enterprises during the last 10 years have increased considerably, in relation to the good economic health of the country. We propose an analysis of the link between economic resources and sporting performance, applied to the case of sports in Turkey, in order to show the complexity of this issue. We shall see that the hypothesis of a direct explanatory influence is not always valid and that other factors should be taken into consideration.

**Keywords** Sports economics • Budgets of sports clubs • Sporting results • Sports sponsorship

## 2.1 Introduction

In 2015, the economy of the biggest and most popular sporting leagues was worth 40 billion dollars (Gayant 2016). This economy brought together major North American leagues (NFL, MLB, NBA, and NHL) and the top five European soccer leagues (Germany, England, Spain, France, Italy). Sporting clubs coming from these leagues thus dispose the financial means needed to optimize their sporting activities (the game itself and any peripheral entertainment) and the organization of the practice of these sports, but still without being able to guarantee their sporting results. Because sport stays fundamentally unpredictable, the very principal of sporting competition being that there is necessarily a winner and losers, losers who always have a certain probability of winning (Neale 1964; Sloane 1971; Vrooman 1995). However, an uneven repartition of means could impact the idea of fair competition; the clubs that are well-endowed financially can optimize their chances of success (in recruiting the best competitors, the best coaches, in investing in the best equipment, etc.) to the detriment of clubs that are less well-endowed (Andreff and Szymanski 2007; Andreff 2009).

More broadly speaking, if we compare the economic ranking of countries to that of their national sporting results (those of the Olympic Games in Rio in 2016), we also argue that there is another strong correlation to be found. Indeed, the top 10 on an economic scale (the USA, China, Japan, Germany, Great Britain, France, India, Italy, Brazil, Canada – according to the gross domestic product, The World Bank's PIB 2015) is found in part, but only in part, on a similar ranking considering their sporting successes (the USA, China, Great Britain, Russia, Germany, France, Japan, Australia, Italy, Canada). India and Brazil do not transform their economic performances on the sporting level; Russia and Australia are better ranked on a sporting

scale than from an economic point of view. In the great international soccer competitions (organized by FIFA and UEFA), the economic level of a country also influences the rankings but not in an automatic fashion (Drut 2014). Thus, the clubs and the national teams of small countries like the Netherlands or Portugal have at times excelled faced with great economic nations like Germany, Great Britain, or France. Because if the sporting competition imposes greater and greater investments, public funding (that of the states and of territorial communities – towns, regions) no longer suffices to finance events that cost more and more (notably in infrastructure); and it is at times not properly handled by bureaucrats who lack expertise.

As a result, the solution ends up being private funding from renowned enterprises that are efficient on the competitive markets (through sponsoring and direct investments in the clubs). However, the funding capacity of enterprises is directly linked to the economic conjuncture of countries where the funding capacity develops.

We propose a two-part analysis. Firstly, we shall see that the economic model of the biggest and most popular European soccer and basketball clubs appears to be a model of efficiency, the level of sporting success being relatively correlated with the clubs' budgets. Next, we will focus on and deepen our analysis using the case of Turkish basketball clubs in order to see if the European model is transferable to them and to see their special features.

## 2.2 The Economic and Sporting Model of Soccer Clubs and of Professional European Basketball

In 2015, the world economy of soccer was estimated at 145 billion dollars and was growing regularly at the annual rhythm of 3.5% (Les Echos 2012). This presents the particularity of associating a strongly expanding, globalized demand (notably following the opening of new markets in Asia) with a geographical near-monopoly of soccer club's products and services essentially situated in Europe. As a result, this structural imbalance is shown through inflation in the payroll and transfer rights (the market's balance essentially made up of the cost for players), as well as media rights and marketing.

In Europe, there is a relative correlation between soccer club's budgets and their sports performances (Kuypers and Szymanski 1999; Kuper and Szymanski 2012; Desbordes and Chanavat 2016; Pawlowski and alii 2010; Cetin and Tribou 2011, 2014; Drut 2014, Tribou and alii 2015). Indeed, possessing an income superior to the average of that of other clubs permits them to recruit the best current players for each team's key positions and to possess the best substitutes and to cope with the temporary unavailability of players, in offering them revenues that are higher than average and having the capacity to outbid on the transfer market by proposing more elevated rights than those of other clubs.

According to Deloitte, a consulting firm (cited by Le Monde de l'Economie 2016), out of the 3.3 billion euros spent by the top 5 European clubs in 2016, 1.4

billion was spent by English clubs (70 million average per club, 100 million for the top 4 clubs – Arsenal, Manchester United, Manchester City, and Chelsea, an all-time high for the transfer of Pogba from Juventus to MU for an amount of 105 million) and only 195 billion by French clubs. Let us highlight that these abnormal British club expenses are not always causally linked with their results: Manchester United and Chelsea not having access to UEFA Champions League this season (2016/17) in spite of their great investments. Note that this inflation of the rights of transfers is favored by the internationalization outside of Europe: the new Chinese, Russian, Indian, and Turkish clubs, as well as the Gulf Countries henceforth participate in the transfers bidding. For example, the transfer of the Brazilian Hulk from St. Petersburg at Shanghai cost the Chinese club 55 million euros, almost as much as that of the Stones to Manchester City (55.6 million).

And so, the payroll of English clubs reached 1.84 billion euros in 2013–2014 compared with 0.96 billion for French clubs (German, Spanish, and Italian clubs falling between 1 and 1.3 billion). English clubs are thus better financially armed to win European matches because, besides their financial capacity to put the best players on the field, they are also able to recruit the most reputable coaches and to invest in training infrastructures and thus to train at a better level. And this economic advantage's effect on the sporting results is accentuated following the signature of new media rights on the English market (3.6 billion euros in national and international rights per season for 2017–2018 vs. 745 million for French clubs). As a result, the last place club team in the English championship (Aston Villa during that season) will receive two times more rights than the winner of the French championship (Paris Saint-Germain). This confirms Barros and Leach's analysis (2006, in agreement with Guzman et Morrow 2007) that had shown that the efficiency of English clubs increases along with their budgetary size, in relation to the size of the city they are representing, insuring them the more or less important crowds of spectators.

This diversity regarding budgetary capacities results in economic models that are markedly different from one country to another, which weigh upon the competition conditions (Perri 2011). On the one hand, French clubs are constricted to a strong rigor of management under the strict control of the DNCG (Direction Nationale du Contrôle de Gestion – National Board of Management Control) which are exposed to a tax system which has the reputation of being the most cumbersome in Europe; on the other hand, the Spanish clubs which are strongly in debt and at the limit of bankruptcy are artificially supported by the Spanish State. The German clubs distinguish themselves by a profitable management of their renovated stadiums (notably in giving their names to these stadiums). But the generalization of the Break Even Rule of the UEFA should lead to harmonization.

Let us also consider that the sponsoring rights reinforce the economic inequalities between the clubs. For example, the English club Manchester United holds the record for its jersey branding (65 million euros spent by Chevrolet) and the record of equipment supplier sponsoring (97 million euros from Adidas), faced with a Paris SG that is three times less endowed (25 million euros from Emirates and 20 million euros from Nike) (Tribou 2016). A branding sponsor who aims to optimize his visibility in a championship will naturally have a tendency to principally orient his

investments towards the clubs which dominate the championships to minimize the risks of a below-par performance. A branding sponsor will equally be attracted to the opportunity to be able to fuse his image with that of celebrities from well-known clubs (the stars of Manchester United competing with those from Real Madrid; and forcing the less known players from Stoke City or from Sporting Gijon into the shadows). It is the Emirates' brand image strategy that is present on the English market with Arsenal (38.5 million euros), on the Spanish market with Real Madrid (30 million), and also the French market with Paris SG (25 million euros). At the same time, the equipment suppliers are also in the bid to dominate soccer: Adidas is in the lead with five major clubs (Manchester United – record of 97 million euros, Bayern 60 million euros, Chelsea 40 million euros, Real 39 million euros, Juventus 23 million euros, Milan AC 20 million euros), Nike having signed with Barcelona (35 million euros) and with Paris SG (20 million euros), Puma (Arsenal 42 million euros), and New Balance (Liverpool 35 million euros) limiting itself to a sole club (Tribou 2016).

Thus, we note a relative correlation between the club's economic means and their sporting results (Table 2.1).

But this assessment should be nuanced. Indeed, considering their budgets, the English clubs should largely dominate the European championships. Yet, the Spanish clubs experience greater success with, it seems, less financial means (Bridgewater 2010; Szymanski 2015, Grygowski and Tuillier 2016). How can this be explained? Using the following four explanations:

1. The first reason is primarily sports-related. Neale (1964; continued by Sloane 1971) emphasized the specificity of a sporting competition that rests upon the uncertainty of the result. Indeed, spectators' interest in attending competitions (notably soccer games) is linked with the non-predictable quality of the results. The effect of incertitude is a source of emotion and gives value to the sporting event. Even if the richest clubs regularly monopolize the top rankings, this challenges the growth of the market in provoking a rapid de-loyalty of the spectators (touched by discouragement). Thus, the completely unanticipated triumph of the club from Leicester City in the *Premier League* in 2015–2016 (faced with clubs with large budgets like Arsenal, Chelsea, and Manchester City) rekindled spectators' interest in the English championships. As a consequence of this characteristic, clubs that have the largest budgets are themselves too involved in the uncertainty of the sporting result, a probable but never certain result.
2. A second reason consists of the human factor, without a direct link with the financial means of clubs: the quality of the training methods for the players, of coaching for the matches, etc. (Lorca and Teste 2010). A less well-paid coach and thus very motivated to prove his/her talent may prove more effective than another famous coach who has nothing to prove. A player in the making, who is worth less according to the transfer prices, can also win in motivation versus a player who has accumulated fortune and celebrity. It seems that the motivation to win is not solely a question of revenues and of bonuses; or, more precisely, that this motivation also rests upon the revenues that one aims to earn in the

**Table 2.1** Sales figures for soccer clubs and for sporting results

|               | Total sales figures for the clubs (media rights, sponsoring, and transfers + ticket office income and by-products) (Mds€/billions of euros) | Of which are national media rights (M€/millions of euros) | Of which are international media rights (M€/millions of euros) | Debt (M€/millions of euros) | Value of the number of players (Mds€/billions of euros) | Number of winning clubs in the <i>League of Champions</i> and in the <i>Europa League</i> the last 10 years |
|---------------|---|---|--|-----------------------------|---|---|
| English clubs | 3.2   | 1298  | 850  | 3000                        | 3.8   | 3   |
| German clubs  | 2.5   | 641   | 45   | 691                         | 2.4   | 1   |
| Spanish clubs | 2.3   | 625   | 236  | 3250                        | 2.9   | 11  |
| Italian clubs | 2.2   | 857   | 117  | 1700                        | 2.4   | 1   |
| French clubs  | 1.3   | 607   | 32.5   | 153                         | 1.5   | 0   |

Sources: DFCG Report, Bundesliga Report, Calcio Report, Liga Report, Guardian Review; in *Sport Eco*, 2/2016

future. Kuper and Szymanski (2012) thus explain why “the most expensive strikers aren’t those who score the most” (relating to the title of their work): a well-paid striker would be less motivated than another who aims to earn more money through proving that he is capable of scoring.

Managerial human resources are also involved. Meningou and Vierstaete (2012) note that the success of clubs is not always linked to their budgetary size owing to the fact that occasionally managers are irrational in their management choices. These authors cite the example of League 1 French clubs who stake everything on a hypothetical involvement in a European Cup, to the detriment of an ongoing National Championship (in regard to recruitments and of investments in infrastructures). A bad national ranking could prevent them from gaining access to the European level of competition.

3. But the explanation is also (and above all) economic. The very unequal repartition of media revenues and sponsoring of the Spanish Championship to the advantage of two dominant clubs (Real Madrid – ranked 1st and FC Barcelona – ranked 4th, in 2014–2015) is an element of explanation behind their European performances. The English clubs have more means, but they are more equally divided. Indeed, the English system of repartition is equally divided, between 20 clubs for half of the media rights, the other half being divided in function of the number of times the club games are broadcasted on various television channels (25% of rights) and of final ranking (25%). This results in English clubs in the middle of the table that are much better equipped than their Spanish competitors but Spanish clubs in the top 5 that are endowed with more income than their English counterpart.

Moreover, Pache and N’Goala (2011) note that the biggest and most popular clubs managed as if they were commercial enterprises tend to place the priority on the maximization of the most profitable income – media rights, sponsoring, by-products – and secondly on winning games. This is in accordance with Drut’s analysis (2014) that distinguishes the 100% sporting logic of national teams (their priority being to qualify and then to reach the final rounds) from the economic logic of clubs aiming rather for sales figures and a distribution of revenues to their stockholders (from the capital gain acquired from transfers) than sporting results.

4. Add a last explanation linked with the clubs’ debt. The Spanish clubs have the most in debt in Europe (3.24 billion €) ahead of the English clubs (3 billion), while the French clubs are the most virtuous and the least in debt (0.153 billion). Debt thus contributes to sporting success by reinforcing the financing capacity of the investment. It should be noted that the progressive implementation of the Break Even Rule by the UEFA will force the clubs that are in debt to better control their budgets, notably in the case of funding by stockholders (this especially concerns the English championship: 11 clubs are owned by foreign stockholders compared to 4 in France, 3 in Spain, 2 in Italy, and 0 in Germany). Be that as it may, currently, out of 30 European clubs that regularly find themselves in the finals of the *Champions League*, only 4 possess balanced budgets (Les Echos 2012).



This financial threat (the need to reimburse those who provide the finances) leads the managers to adopt management policies for the clubs in order to increase their cost-effectiveness. This happens through diversifying the entertainment offers (adding diverse peripheral products to the central product of the sporting competition: musical shows, sporting tourism, enterprises' seminars, catering, etc. – following the example of FC Copenhagen in which the soccer game itself was no longer the priority, but instead became less important than the other products and services that the soccer club offered, such as musical performances or catering. This was a result of the yield management's attempt to fill the stadiums (and to regulate income; if there are less spectators, the ticket prices become cheaper, or if the stadium becomes full, the ticket prices can increase). Some projects are under consideration – increase the attractiveness of the spectacle by adopting the rule of the offense point (the team with the strongest offense, scoring goals, being favorable in comparison to the defensive team, which is detrimental to the competition) and above all the project of adopting the North-American salary cap (establishing a ceiling for the salaries permitting the re-establishment of a minimum of sporting concurrence and to reduce the clubs' debt).

The economic model that soccer provides is transposable to other collective, professional sports, and notably to European basketball.

In soccer as in basketball, the record-holding European club is Real Madrid: 9 titles in the Basketball Euroleague and 10 titles in the Soccer League of Champions. The economic model seems to impose itself upon the two championships. The Euroleague organized by the ULEB (European Association of Basketball Leagues) is a semi-closed league: out of 16 clubs in competition, 13 are assured to not be relegated; the others are each invited to sporting seasons. The objective is to move towards a closed league (a private league such as the NBA) in 2019, bringing together the clubs from the main cities. Let us note that basketball is currently at the center of a major conflict between the international historic federation (the FIBA) provided with a subsidiary for Europe (FIBA Europe, association of German rights) and the ULEB (private company of Spanish rights) created in 2000 to develop more attractive competitions for the media and for the sponsors. Up until the 2015–2016 season, the ULEB organized the two main competitions (*Turkish Airlines Euroleague*, C1, and *Eurocup*, C2) while the FIBA organized the *FIBA Europe Cup*, C3, which received less attention from spectators, particularly on television. Since the 2016–2017 season, the two entities are in an open conflict. The FIBA created a new private society of Swiss Rights (the *Basketball Champions League* held at 50% by the FIBA, at 50% by the 10 national leagues) opposing itself head-on to ULEB in C1 with rival competitions: a *Champions League* in C1 and a *Europe Cup* in C2. This struggle for power is not only sports-related, it is above all economic, and the expression of the choice of sponsors and of media outlets. The ULEB signed a contract worth 600 million euros with IMG Media, in addition to the contract with Turkish Airlines permitting their name to be on the stadium as well as with a pool of partners determined to weigh in on the sporting competition, whereas the FIBA struggles to find sponsors. This illustrates the growing role of economic partners in the organization of the sport spectacle: the sponsors, certainly, but also the owners/

investors from the biggest and most popular clubs, the equipment suppliers who provide for the teams, and the media who diffuses the images. This economic weight of the ULEB explains assembly of the biggest and most popular clubs: Real Madrid, FC Barcelona, CSKA Moscow, Maccabi Tel Aviv, Olympiacos Athens, Fenerbahçe Ulker, and Anadolu Efes Istanbul notably.

Drut (2014) shows that an open league certainly forces clubs to compete with one another in order to avoid the descent into a lower division but also to accumulate preventative resources to keep in reserve in case they face relegation (notably due to the revenues used for transfers). In comparison, the closed league could lead to a club that is certain of its maintenance, to neglect the sporting results and the ranking in order to concentrate their energy on optimizing the marketing and financial products (media, sponsoring, licensing, trading of players). However, this takes on the risk of losing its crowds of live spectators who stay very attached to the results (Andreff 2009). The solution adopted by the richest clubs is to guarantee crowds through the presence of celebrities (that they collect from training centers of the less prestigious clubs). They no longer need to train players, but instead can buy whichever players they like from the less wealthy clubs.

Let us illustrate our analysis through the case of the Professional Basketball Championship in France that possesses an average club budget of 4.66 million euros (M€) and a brute, average mass salary of 1.51 M€. This signifies that a third of the budget goes to the salary of the players and of the technical staff. Thus, the smallest club (Le Havre) that has 4 times less financial means for recruiting the best players and coaches than the biggest club (Limoges) will begin the championship with a heavy handicap. There is thus a disparity of chances and an unfair sporting competition.

When we analyze the relationship between the budgets and the sporting results of 18 Professional French clubs, we observe a relative correlation. Indeed, the sporting ranking for 2015–2016 shows that the top 5 championship teams are all in the top 8 concerning their budgets, but in a markedly different order (Table 2.2): Chalons obtained a 4th place with a budget ranked 8th, whereas Monaco finished first with the 6th place budget. The last team according to the rankings – Le Havre – is also the club possessing the smallest budget (2.58 M€).

But let us note the counterexample of Limoges, which falls at the 10th place of the championship in spite of the highest budget of the Pro A (7.67 M€).

**Table 2.2** Top 5 championship rankings of basketball Pro A in France: 2015–2016 season

| Ranking of clubs | Budgets             |
|------------------|---------------------|
| 1. Monaco        | 6th budget: 4.71 M€ |
| 2. Strasbourg    | 2nd budget: 6.23 M€ |
| 3. Le mans       | 4th budget: 5.85 M€ |
| 4. Chalons       | 8th budget: 4.63 M€ |
| 5. ASVEL         | 3rd budget: 6.21 M€ |

It is also appropriate to take into account the internal budgetary structure of clubs. Certain clubs assigning a larger part of their budgets to the payroll than others, they increase their sporting capacities, or their ability to win games, in being able to recruit the most expensive players. This is the case of Monaco who, despite a modest 6th place budget (4.71 M), possesses the third mass salary of the championship. This permits Monaco to recruit even more sporting talents (under leadership of their Ukrainian president who is a banker).

The relationship between financial resources and sporting results thus must be clarified. An in-depth analysis of the Turkish Basketball Championship will permit us to propose an initial model.

### 2.3 The Case of Turkish Basketball Clubs

Currently, it seems that without the financial contribution of private or public enterprises, the sporting success of Turkish clubs and teams would no longer be possible (Cetin and Tribou 2011, 2014). Yet, the sports sponsoring investments depend upon the economic health of a country. If the economy is growing, the enterprises possess the means to invest in sports; on the contrary, reductions in expenses principally affect communication and notably sponsoring. The example that Turkey provides us is indicative of this (Polo 2012).

We propose an analysis of the causal connection between the sporting performances of Turkish basketball clubs and the economic investments of those who finance them (viz., through applying the European professional club model mentioned above) through the research of documents as well as a series of interviews with the sponsoring managers of the main Turkish enterprises.

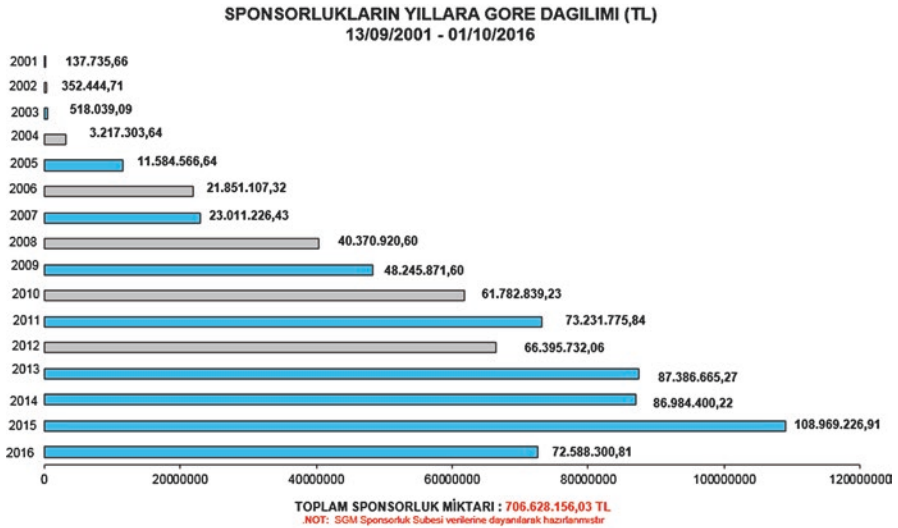
The Turkish economy is ranked 17th globally and has more or less stayed in this position for more than 20 years. Indeed, the gross domestic product of the country (GDP) has grown regularly since the start of 2000; it passed about 265 billion dollars in 2000, to reach more than 480 billion in 2005, approaching 720 billion in 2015 (Table 2.3). It has thus multiplied by 2.6, which permitted the Turkish economy to wield the resources in order to notably invest in sports, in a country possessing a player and spectator potential of 80 million inhabitants.

**Table 2.3** Evolution of Turkey's GDP (millions of dollars, 2000/2015)

| Year | GDP     | Year | GDP     |
|------|---------|------|---------|
| 2000 | 265.384 | 2009 | 616.703 |
| 2001 | 196.736 | 2010 | 731.608 |
| 2002 | 230.494 | 2011 | 773.980 |
| 2003 | 304.901 | 2012 | 786.283 |
| 2004 | 390.387 | 2013 | 823.044 |
| 2005 | 481.497 | 2014 | 799.001 |
| 2006 | 526.429 | 2015 | 719.620 |

Source: National Bureau of Statistics (TUIK)

**Table 2.4** Sport sponsoring expenses in Turkey from 2001 to 2016 (in Turkish liras)



Total sum: 706, 628, 156.03 Turkish liras (TL)

Source: Sponsoring Office

Indeed, despite the context of a global economic crisis, the Turkish economy has strongly developed itself with the fulfillment of great works of infrastructure (in the sectors of transportation and of construction) notably linked with sports. Certainly, thanks to public financing, twenty-something soccer stadiums were constructed all over the Turkish territory and numerous sports halls were built in order to host clubs, their players and their spectators. Thus, Istanbul has three sports halls (Fenerbahçe Ülker Arena, Sinan Erdem, and Abdi İpekçi) with a capacity of 15,000 spectators and 5 sports halls with a capacity varying between 5000 and 7500 spectators, which renders the city the European capital of basketball in terms of crowds (according to the French sports newspaper *L'Equipe* from November 4, 2016).

Turkish economic growth has equally had a remarkable impact on sports sponsoring expenses. According to the information from the Turkish office of sponsoring (dependent upon the Sports Minister, Table 2.4), these expenses went from an annual sum of about 140,000 Turkish liras in 2001 to 60 million in 2010, achieving 109 million in 2015 (equivalent to about 37 million dollars). From 2001 to 2015, the sum of sponsoring expenses was 706 million Turkish liras (235 million dollars), and this “explosion” of sponsoring investments continued (with the exception of the year 2012). Let us note that without a doubt the reality surpasses this figure, because the official Sponsoring Office does not take inventory of the totality of its expenses (as certain sponsors do not officially declare their expenses).

According to the Sponsoring Office, the finance sector is the sector that spends the most. During the last 15 years, their investment in sports has risen to 145 million Turkish liras (equivalent to 48 million dollars). At 2nd place for investors, we find the sector of services with 103 million in expenses (34 million dollars), then the transportation sector (30 million dollars), the electricity and electronics sector (18 million dollars), that of construction (17.8 million dollars), of the food processing industry (14.5 million dollars), of the sporting industry (12.6 million dollars), of health (9.3 million dollars), of telecommunication (7.5 million dollars), and of the automobile (7 million dollars).

Within each sector, it is remarkable to note that the companies that attain the largest sales figures are those that invest the most in sport. This is notably the case of the two first Turkish companies – Turkish Airlines (Table 2.5) and Türk Telekom (Table 2.6) – of which the brand values are estimated at 2.5 and 2.4 billion dollars and who are the two main sponsors of the country (Table 2.7).

**Table 2.5** Interview with Ergün Köksoy, brand supervisor of Turkish Airlines (verbatim)

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Since 2000, Turkish Airlines has had a strong economic development in direct relation to our sponsoring activities. In 2003, we had 65 planes for 10 million travelers, 335 and more than 60 million in 2016, with destinations including 117 countries. In 2016, we were selected as the best Turkish brand and as one of the best in Europe.

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Turkish Airlines started their sponsoring in 2010 in the soccer clubs Manchester United and FC Barcelona, next with popular athletes like Kobe Bryant (NBA), Lionel Messi (soccer), and Caroline Wozniacki (tennis). Our objectives were to develop our notoriety on a global level. Currently, we are diversifying our contracts by including other sports like golf or rugby but also by including other cultural and social projects in order to show our citizenship.

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With our sponsorship of Euroleague basketball (until 2020) with strong notoriety, we seek to reach an international target: firstly, basketball fans in Europe and, beyond that, the spectators in the rest of the world, because Turkish Airlines Euroleague is broadcasted in 200 countries to about 2 billion people. Prior to, during, and after the games, we lead different expediting operations for our brand.

At the same time, soccer sponsoring allows us to reach a larger public, notably during Euro 2016, because soccer is the most followed sport in the world and the most efficient for reaching our target. Further, our tennis sponsoring, as well as golf and ruby sponsoring, seeks to reach the business class.

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Sponsoring also permits us to lead hospitality operations with our partners and with our clients and to present them with our products. For example, during Euro 2016, our airline hostesses welcomed the soccer players, like in a company airplane in order to show our know-how concerning how we welcome our clients. We renovated the same promotion for the Antalya golf event, because reception and welcoming are important values in Turkey.

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**Table 2.6** Interview with Celal Ayyildiz, Turk Telekom Sponsoring Manager (verbatim)

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| <p><i>With all of these sponsoring investments in the sports domains, Turk Telekom has become a brand that all the soccer fans know. They remember and like our brand. Our contribution to Turkish sports conforms to the identity of our brand. We bring to sports what we bring to the country: an added value. No matter how the clubs perform, well or badly, our support strategy stays the same.</i></p> |
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**Table 2.7** Ranking of Turkish companies according to the value of their brands (ranking from Brand Finance 2016 – <http://brandfinance.com>) and sponsoring activities

| Company and brand value            | Sponsoring  | Company and brand value   | Sponsoring  |
|------------------------------------|---|---------------------------|---|
| Turkish Airlines: 2.5Mds (billion) | Basketball (ULEB Euroleague, Turkish Federation), soccer (UEFA), rugby (rugby challenge cup, IFK Helsinki), tennis (tournaments), golf (tournaments), equitation, windsurfing, etc. | Turkcell: 1.4 billion     | Basketball (federation), track (federation), soccer (federation), swimming (federation) |
| Türk Telekom: 2.4 Mds (billion)    | Basketball (Turk Telekom club), soccer (naming the stadium Turk Telekom Arena, clubs from Fenerbahçe, Galatasaray, Trabzonspor)   | İş Bankası: 1.3 billion   | Chess games (federation)  |
| Arçelik (Beko): 1.9 billion        | Soccer (brand: Beko – FC Barcelone), basketball (FIBA and national leagues from Germany and Italy)  | Anadolu Efes: 1.2 billion | Basketball (Anadolu Efes club – men’s team)   |
| Akbank: 1.6 billion                | Cultural sponsoring   | Yapi Kredi: 0.98 billion  | Football (UEFA Champions League)  |
| Garanti Bankası: 1.5 billion       | Basketball (federation)   | Halkbank: 0.958 billion   | Volleyball (Halkbank club, men and women’s teams)                                       |

**Table 2.8** The criteria behind the choice of sport used by Turkish Airlines

1. Develop the notoriety of the brand
2. Bring positive, measurable values to the brand – values that conform to the identity and to the strategy of the brand
3. Reinforce the brand’s position in relation to its competitors
4. Allow the realization of public relations operations with partners as part of the sporting events
5. Increase the size of clientele’s wallets and their customer loyalty through hospitality operations

Source: <http://www.turkishairlines.com/tr-tr/kurumsal/sponsorluklar>

Among the other most active companies, let us equally cite Beko/Arçelik (from the Koç Group), Turkcell, Lassa, Garanti Koza, Doğu Group, and Ulker; and let us note that certain companies with an international dimension equally and logically invest outside the borders of the country. But one of the most dynamic on the sporting scale is the aeronautical company Turkish Airlines (Table 2.8). Its name is directly associated with the Euroleague basketball (in the form of a contract that obligates the ULEB, the owner of the event, to evoke the name of *Turkish Airlines Euroleague* to the media); this company was also a sponsor of the UEFA through *Euro 2016* and also sponsored tennis, golf, and rugby events both in Turkey and abroad. Let us note that its sporting activism correlates with its economic growth and its privatization started in 2006 (more than half of the capital): the number of travelers transported passed 12 million in 2004 and went to 61.3 million in 2015,

and the company is now worth 2% of the country's economy. Another company is also fully present in sports; the society of the sector of electrical appliances Beko. This company sponsored many national European leagues like those from Germany, from Italy, and from Lithuania (Cetin, 2015: 244); this company is equally a partner of the FIBA (the official federation of basketball competitor of the ULEB) and of Barcelona's club. Also let us name the company Garanti Koza, from the construction sector, which strongly invested in tennis in becoming, in 2016, the Gold Sponsor of the final tournament of the ATP Masters (bringing together the top 8 players), that of Sofia's ATP tournament in Bulgaria and the ATP and WTA tournaments (ATP male players and WTA female) in Istanbul.

The role of sponsors in the development of Turkish sports has been primordial. Indeed, apart from some traditional sports like wrestling or weightlifting, Turkey has never shined in sports until the 1980s. Historically, the shortfall in sporting results is explained by the weak interest given to the sport by the Turkish politicians (different from European, Occidental politicians who very quickly understood that sport, very popular, could help them win elections). Another explanation emerges when one associates the degree of political stability of the country with its sports performances. Indeed, since 1945, each period of stabilization has been followed by sports successes. Thus, from 1950 to 1960, the Democratic Party permanently installed in power recorded 19 Olympic medals (including 12 gold in the 1952, 1956 and 1960 Olympic Games), then the number of medals fell (6 in 1964, 2 in 1968, 1 in 1971, 0 in 1976) in a context of political chaos (coups and terrorism). Similarly, from 1983 to 1991, the ruling Anavatan Party counted 11 medals (including 3 gold in the 1984, 1988, and 1992 Olympics). Since 2002, the current AKP Party already has 30 medals (including 6 gold at the 2004, 2008, 2012, and 2016 Olympics).

The economic consequence has been the chronic weakness of public budgets assigned to sports, not deemed a priority faced with societal urgencies like defense (the army) and education. However, at the start of the 1980s, a small number of pioneering enterprises from Istanbul took an interest in collective sports that attract a lot of spectators like basketball and volleyball. They decided to promote the sports that, according to these enterprises, were summoned to develop themselves in the Occidental world. Let us note that at the head of these companies were bosses that were convinced of the future of Turkish sports not only in the economic interest of their companies but also as a means of socialization. From the start, the sponsoring from these companies took on a "citizenship" dimension: helping with sports development certainly for commercial reasons (the sponsors acquiring the notoriety and enhancing their image) but also for reasons of social responsibility. Let us look at the example of the pioneer Eczacibasi, a pharmaceutical company that created its own basketball team between 1970 and 1980. The company thus actively participated in the development of Turkish basketball in rendering it popular and in "exporting" it beyond the borders (Atabeyoğlu 1970: 99; Cetin 2015: 283; Gencer and Berkman 2004). The club Eczacibasi also formed numerous players and coaches who became the best in the country and who found themselves on the uniforms of the Turkish

national team (named Balkan champion in 1981 then qualifying for the final round of the European Championship in 1993).

Following the example of Eczacıbaşı, the brewing company Efes Pilsen took the reins. This company also created its own basketball team in 1976 and, during 40 years of involvement in Turkish basketball, Efes Pilsen won the title of Turkish champion 13 times, the Turkish Cup 10 times, and the President's Cup 10 times. Its sporting successes also exceeded the national scope through the realization of historical achievements on the European level (participating in the Final for the *Cup of Cups* in 1993, their title from the *Korac Cup* in 1996, two qualifications in the *Final Four* of the Euroleague/SuproLeague in 2000 and in 2001). Thus, Efes Pilsen was the first Turkish basketball team to play in a European final, to qualify for the *Euroleague's Final Four*, and to win a European Cup. This also opened door of the North American NBA to Turkish players (Mirsad Turkcan and Hidayet Turkoğlu were formed by Efes Pilsen).

And so, the Efes Pilsen club has long been considered the main Turkish basketball school that permitted the other clubs in the Turkish championship to be supplied with high-level players. The club's sporting success also permitted the bettering of the national team's performances, composed of multiple players from Efes Pilsen (notably during the Final of the European Championships in 2001, then on a global level in 2010). Despite being defeated twice in the finals, Turkey has become a major player in European basketball. One could even argue that Efes Pilsen has become one of the great brands of European basketball.

The marketing analysis that one could undertake using Efes Pilsen's investments in sports sponsoring for over 40 years leads to the analysis that their main objective was strategic. Indeed, since the start, the company's marketing directors posed as a hypothesis that the combination of the product of beer and the spectacle of basketball was able to shape an association profitable for the brand. In the 1980s, the Turks wished to gain access to an Occidental way of life, and, for them, consuming beer or interesting themselves in a sport with media coverage like basketball could appear as a symbol of this way of life (Okay 1998, 329). The branding strategy worked perfectly because it largely dominated the Turkish beer market for more than 30 years, with 70% of the market. The competition is, because of this, completely stifled and absent on the sporting scene. The second reason that this marketing option was able to be communicated through sports was the promulgation of a law in 1984 making it illegal to advertise alcoholic beverages. Following this law, the sales of Efes Pilsen fell by 50%, which forced the company to react by amplifying their sponsoring investments, notably in basketball (Okay 1998, 329).<sup>1</sup>

In the Turkish economy, Efes Pilsen constitutes a reference, an example to follow. Their sporting and commercial success incited other companies to invest in basketball as well. Among these companies, Ülker, a cookie brand, also formed their own team in 1993 and this team became the great rival of Efes Pilsen until

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<sup>1</sup>In 2011, Efes Pilsen was forced to modify its name following the promulgation of the law that forbids the presence of tobacco and alcohol brands in sporting and musical activities. The club has since been named Anadolu Efes.



2006. Thanks to this rivalry between these two teams from Istanbul, basketball gained popularity. Today, it is the second most popular sport after soccer. And other enterprises, other brands, followed the movement initiated by Efes Pilsen: Tofas (Bursa), Oyak Renault (Bursa), Türk Telekom (Ankara), Tuborg (İzmir), and Banvit (Balıkesir).

If we consider that the three main sponsors of Turkish basketball are Efes Pilsen, Ülker, and Tofas (from the automobile sector), we are dealing with three clubs disposing budgets that are 2–3 times higher than the average of other clubs and who have dominated the championships from the beginning of the 2000s. This permits these clubs that are more financially endowed by their sponsors to recruit the best Turkish coaches and players but, above all, foreigners. As a consequence, between 1995 and 2006, Efes Pilsen won six national titles, Ülker won five titles, and Tofas two titles, very far ahead of the other clubs.

However, the sponsors had to deal with the difficulty of having to fill the sports arenas and halls, that being an essential condition for the success of their communication strategies. Indeed, even if the media broadcasts the game, it is necessary that the halls be sufficiently filled to guarantee a certain ambiance. Because with a lack of ambiance, the media audience might turn away from the televised game or from the Internet sites (Tribou 2016). If during the European Cup games, the halls were full (bringing together between 10,000 and 15,000 people, notably thanks to partner enterprises who took on the habit of distributing free tickets and of organizing transportation for the fans), however, the National Championship games took place in halls that were practically empty. This led the sponsors to put pressure on the broadcast media by putting the purchase of advertising venues into the balance and, for certain ones, by reviewing their strategies.

Thus, in 2006, Ülker decided to dissolve its team, in order to transfer its capital to the country's most popular club: Fenerbahçe. This decision to invest in a club with strong notoriety wielded fruit. Indeed, Ülker's sponsoring helped the club construct its own hall of 15,000 people in 2012, for an overall cost of 60 million dollars. This ultramodern hall (the Ülker Arena) with its 44 boxes and its VIP areas also offers restaurants that attract the spectators. Further, for more rent-ability, the hall also welcomes cultural activities outside of the basketball games. The financial contribution from Ülker made Fenerbahçe into one of the most successful basketball teams in most recent years. Indeed, the club qualified for the last three Final Fours of the Euroleague (2014/15, 2015/16 and 2016/17; F.Bahçe won the Euroleague title at the last Final Four -2016/17- which has been organised in Istanbul) and it has become the second Turkish team (Efes Pilsen) to achieve this European feat.

The money from sponsors thus greatly contributes to sporting success. According to Maurizio Gherardini (former manager of the Toronto's NBA club and currently Fenerbahçe's manager), the success of the club makes sense because "here there are the best coaches, the best players and above all the best sponsors (...) within what is today the best league in Europe" (*L'Equipe* newspaper, 4/11/2016). For example, this exterior financing permitted the club to recruit, in 2013, one of the best coaches in Europe and the most well paid, the Serbian Zeljko Obradovic (winner of eight editions of the Euroleague with the biggest and most popular clubs: Partizan,

Badalona, Real Madrid, Benetton, and Panathinaikos). The president of the club, Aziz Yildirim, completes the analysis of the manager (Hurriyet; 14 May 2016). According to him, the club that spent 120 million euros in 4 years for an income of only 60 million euros wouldn't have been able to survive economically without exterior help. Further, the assistance is also public if we consider that the Turkish state accords a fiscally advantageous system to the clubs (with a tax rate of about 15%, that is to say, largely less than in other European basketball countries). This indirect assistance from the state also translates itself into a sporting advantage for recruiting the best players on the continent because; besides a less burdening tax for the clubs, the players are not directly required to pay taxes. They receive the net salaries (after the tax deductions), the clubs taking the responsibility for the taxes.

Another example of the role that the sponsors play in the clubs' sporting success is provided by the Darüşşafaka club. The company Doğuş Group (a group present in multiple sectors: banking, real estate, media, construction, tourism, automobile, etc.) became Darüşşafaka's sponsor in 2014. However, at this time, the club played in the second division. In 3 years the club, with the economic support of Doğuş, reached the first division of the Turkish Championship and also reached the Euroleague by benefitting from wild cards (at two separate occasions: in 2015/16 and in 2016/17). But why is there this mark of favor from the organizers the Euroleague?

The first reason concerns finances. Doğuş Group, the main sponsor of Darüşşafaka, is also a sponsor of the Euroleague (along with other brands like Seat and Zubizu that are close to the group). We can thus suppose that the decision to give favor to Doğuş is linked with its financial influence. The second reason is marketing. Doğuş Group financed the transformation of an auditorium in Istanbul into a space able to welcome international basketball in conformity with the Euroleague's standards. The Volkswagen Arena (from the name of the German brand distributed by Doğuş in Turkey) can welcome 5000 spectators and offer them a spectacle worthy of the best sporting arenas of the North-American NBA (giant central screen, electronic scoreboards, light shows, music, games for the fans, dance shows during the time outs, etc.). The amount of Doğuş Group's investment is secret (it is the law in Turkey), but it is estimated that the club's budget is around 20 million euros of which a great portion is provided by the main sponsor.

Other examples of fruitful "marriages" between clubs and sponsors could be noted, like that of the great rival of Fenerbahçe – Galatasaray – and the bank Odeabank. This certainly contributed to Galatasaray winning the ULEB Eurocupin 2015/16 and being able to participate in the ULEB Euroleague. It seems that in the absence of financial support, Turkish clubs did not have any chance to succeed sports-wise, because the revenues of the ticket office and media rights did not suffice in compensating for the minimum expenses in order to reach the European level. We can also use the example of the club of Beşiktaş sponsored by Sompō Japan or even that of Karşıyaka sponsored by Pinar; these two clubs finding themselves in the Champions League of the FIBA in 2016–2017.

The main result of these interviews with the club managers and the companies is to be able to explain where the motivation of the enterprises is principally located.

According to them, this motivation is based upon the public's interest for basketball and the media broadcasting of the games, because along with the modernization of the sporting halls, the crowd attendance regularly increases. Thus, at the time of the Euroleague games, the sporting halls of the biggest, most popular, sponsored clubs are more or less full (95% on average for Fenerbahçe, between 80% and 85% for Darüşşafaka, between 65% and 80% for Galatasaray, between 50% and 70% for Efes). Another factor in the positive attitude of sponsors is the broadcasting of the games. The competition between television channels is very lively as many public and private channels are candidates for the broadcasting of the clubs' games. During the 2016/2017 season, two private channels (Lig Tv and NTV Sport) and the public channel TRT broadcasted the Euroleague games, while another private channel (A Sport Tv) broadcasted the FIBA Champions League games.

## 2.4 Conclusion

The analysis of the economic situation of Turkish basketball clubs in regard to their sporting performances shows the existence of a particularly causal link. A club has little chance of success in the absence of financing that permits it to recruit the best players and coaches and to have at their disposal a sports hall equal to their sporting ambitions. In the Turkish case and unlike Western European clubs (for whom the media rights weigh very heavily), the provisions from sponsors seem determining. A Turkish club can only very difficultly be successful without aid from partners.

However, it is necessary to note a negative effect to this providential financing. Since the 2015–2016 season and under pressure from sponsors, the clubs are authorized to integrate even more foreign players into their clubs than before. It is now possible that the 5 starters, a group that earlier would have consisted of a minimum of two Turks, henceforth consists of 100% foreign players. As a result, the clubs play more and more with numbers that are predominantly, even exclusively, foreign. Fenerbahçe, for example, does not use practically any Turkish players in the Euroleague. The Turkish players thus progressively lose expertise and the national team seems to be on the decline. Indeed, since the Euro 2011, Turkey has no longer qualified in the quarterfinal. Thus, the better results obtained by Turkish clubs thanks to their sponsors should be put into perspective by the not-so-good results of national teams.

Further, Turkish enterprises do not only sponsor Turkish basketball clubs, they also collaborate directly with the organization of international federations (notably the ULEB). Thus, Turkish Airlines is the main sponsor of the Euroleague until 2020, at the side of Doğu Group, of [Nesine.com](http://Nesine.com), of Zubizu, and of Tadim, co-sponsors of this major European basketball event. And it is not by chance that the ULEB chose Istanbul as the organizing city of the 2017 Final Four (for the second time after 2012). At the same time, they also are interested in other collective, popular sports like soccer or volleyball. Thus, the bank Vakifbank accompanied its female volley-

ball team to the title of the Champions League in 2016 and financed the construction of a new sports hall in Istanbul.

However, this implication on a sporting scale for Turkish enterprises remains fragile, as it is directly dependent upon the good economic health of a country in a very uncertain international geopolitical context.

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# Chapter 3

## The Impact of Residents' Posture on the Degree of Acceptance of Sports Tourism in Comparison to Other Tourist Offers in Punta del Este

María Dolores Sánchez-Fernández, Daniel Álvarez-Bassi,  
and José Ramón-Cardona

**Abstract** This chapter examines the relationship between residents' posture towards tourism and the degree of acceptance of sports tourism in comparison to sun and beach tourism, maritime tourism (sailing and cruises), and nature tourism in the case of Punta del Este (Uruguay). The study of residents' posture is important for the management of tourist destinations. Residents create a posture towards tourism through a cost–benefit analysis based on their perception of economic, social, cultural, and environmental impacts of tourism. The analysis of the data was carried out through partial least squares on a sample of 420 residents in Punta del Este. The fieldwork was carried out between March and August 2016. The main results of the analysis are as follows: the strongest causal relationship is between residents' general posture and sun and beach tourism, followed by the causal relationship between general posture and sports tourism. The main conclusion is that a more tourism-friendly posture does not imply greater support for any type of tourism, as is the case in this study with regard to nature tourism. There is an important relationship between general posture and the acceptance of sports tourism, and this implies that by improving residents' general posture, the enthusiasm for developing sports tourism also increases.

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**Keywords** Management • Residents • Uruguay • Tourism • Sports • Tourist destination

### 3.1 Introduction

Several studies on the stance of residents towards tourism have been undertaken since the end of the 1970s (Almeida et al. 2015; Sharpley 2014). At first researchers focused their investigations on measuring attitudes and their relationship with the impacts perceived (Akis et al. 1996; Allen et al. 1988, 1993; Besculides et al. 2002; Faulkner and Tideswell 1997; Gee et al. 1989; Gursoy et al. 2002; Haralambopoulos and Pizam 1996; Jurowski et al. 1997; Lindberg and Johnson 1997; Mason and Cheyne 2000; McIntosh and Goeldner 1990; Perdue et al. 1990; Teye et al. 2002). These investigations grouped the impacts, benefits, and costs into three or four categories within the economic, social, cultural, and environmental framework (Andereck et al. 2005; Ayres 2000; Gee et al. 1989; Gursoy and Rutherford 2004; Gursoy et al. 2002; McIntosh and Goeldner 1990).

On the other hand, different types of tourism affect the attitudes of residents (Murphy 1985; Williams and Lawson 2001) when it involves different impacts on the local environment and interactions between tourists and residents. However, the vast majority of studies on residents' stance analyze the tourism sector as a whole. Only a few cases have focused on a particular type of tourism or activity. The only exceptions are resorts (Hernandez et al. 1996), national parks (Hammit et al. 1996; Holladay and Ormsby 2011; Jurowski et al. 1995; Sekhar 2003; Walpole and Goodwin 2001), hunting (Mackay and Campbell 2004), and casinos (Brown et al. 2003; Carmichael 2000; Chen and Hsu 2001; Coulter et al. 2013; Hsu 2000; Janes and Collison 2004; Kang et al. 2008; Ko and Stewart 2002; Lee and Back 2003, 2006; Lee et al. 2003, 2010; Levitzky et al. 2000; Lockyer 2012; Nichols et al. 2002; Stitt et al. 2003; Sutton and Griffiths 2008; Vong 2004, 2009; Vong and McCartney 2005).

The objective of this investigation is to determine how the perceptions and attitudes of the residents affect the level of acceptance of different types of tourism in the case of Punta del Este. Punta del Este forms part of the Department of Maldonado and is the main sun and beach tourism destination in the Oriental Republic of Uruguay and one of the main destinations in South America. The tourism demand in this area is mainly aimed at tourists from Argentina. There are 9200 inhabitants in the city center of Punta del Este, but there are more than 100,000 residents in the Maldonado-Punta del Este conurbation. Punta del Este receives more than 620,000 tourists annually during high season from December to February (Ministerio de Ministerio 2016).

The different types of tourism investigated in this study are sports tourism, maritime tourism (sailing and cruises), and nature tourism. Sun and beach tourism has been included in this study as an element of comparison seeing as it is the main activity in the destination. The analysis of the data has been carried out through the partial least squares (PLS) regression, specifically the statistical software SmartPLS

2.0 M3 (Ringle et al. 2005). The objective of this investigation study is to analyze whether there is a relationship between the attitudes of residents towards tourism in general and the degree of acceptance of different types of tourism.

This chapter is organized as follows. After this introduction, the next section outlines the relevant theory. Section 3.3 describes the methodology for the empirical analysis, its measures, and the variables. Section 3.4 presents the results. The chapter ends with a brief conclusion.

## 3.2 Literature Review

Investigations carried out on residents' stance towards tourism have grouped the impacts perceived into three or four categories within the economic, social, cultural, and environmental framework (Andereck et al. 2005; Ayres 2000; Gee et al. 1989; Gursoy and Rutherford 2004; Gursoy et al. 2002; McIntosh and Goeldner 1990). The economic benefits stand out the most among the four types of benefits analyzed in the literature review (Besculides et al. 2002; Bruner 1996; Gursoy et al. 2002; Jurowski et al. 1997; Liu and Var 1986; Madrigal 1993; Milman and Pizam 1988; Teye et al. 2002), mainly the creation of job opportunities (Besculides et al. 2002; Bruner 1996; Gursoy et al. 2002; Teye et al. 2002; Var et al. 1985). However, the other benefits must not be disregarded, which leads to the proposed hypothesis 1:

- Hypothesis 1:* The perception of the benefits generated by tourism has a positive effect on the general attitude towards tourism.
- Hypotheses 1.1:* The perception of the economic benefits generated by tourism has a positive effect on the general attitude towards tourism.
- Hypothesis 1.2:* The perception of the social benefits generated by tourism has a positive effect on the general attitude towards tourism.
- Hypothesis 1.3:* The perception of the cultural benefits generated by tourism has a positive effect on the general attitude towards tourism.
- Hypothesis 1.4:* The perception of the environmental benefits generated by tourism has a positive effect on the general attitude towards tourism.

As a counterpart of the benefits, the perceived costs have significant and negative effect on attitudes towards tourism (Jurowski et al. 1997; Keogh 1990; Long et al. 1990; Milman and Pizam 1988; Prentice 1993). The perception of the costs along with the perception of benefits allows residents to carry out an overall assessment of tourism, which in turn determines their attitude towards the sector. Based on the existing literature review (Bujosa and Rosselló 2007; Jurowski et al. 1997; Keogh 1990; King et al. 1993; Liu et al. 1987; Long et al. 1990; Milman and Pizam 1988; Prentice 1993), the perception of the existence of costs derived from tourism leads to a less positive assessment and a more negative attitude towards tourism. The following hypothesis 2 is proposed:

- Hypothesis 2:* The perception of the costs generated by tourism has a negative effect on the general attitude towards tourism.



- Hypothesis 2.1:* The perception of the economic costs generated by tourism has a negative effect on the general attitude towards tourism.
- Hypothesis 2.2:* The perception of the social costs generated by tourism has a negative effect on the general attitude towards tourism.
- Hypothesis 2.3:* The perception of cultural costs generated by tourism has a negative effect on the general attitude towards tourism.
- Hypothesis 2.4:* The perception of environmental costs generated by tourism has a negative effect on the general attitude towards tourism.

The differences in the behavior of tourists at the destination when studying the different types of tourism must be taken into account as it is the element which has the most significant effect on residents' attitudes. A tourist who shows respect and interest in the local culture and society is seen differently from a tourist seeking only freedom at low prices and in an environment similar to their place of origin. Plog (1974) establishes typologies as to the reason why tourists choose their destination: *allocentrics* (tourists who search for unknown places with no tourism development) and *psychocentrics* (tourists who escape from unknown places and visit consolidated destinations). Tourists with cultural and adventurous motivations tend to show greater respect for the residents and take part in more activities during their stay. On the other hand, there are tourists with no interest in the local culture and who want to rest (Gómez et al. 1999). This type of tourist considers that the tourist destination, including residents, should adapt to the tourists and not vice versa.

Some tourists have anti-tourist attitudes (Bruckner and Finkelkraut 1979; Doran et al. 2015; Gration et al. 2011; Gustafson 2002; Jacobsen 2000; Yu et al. 2012) and do not want to mix with tourist masses, i.e., they want to live an original experience which is not lived by mass tourism, since tourists are not considered (Hennig 1997). Anti-tourist attitudes have become a symbol of prestige since this type of tourist does not want to be an ordinary tourist (Bruckner and Finkelkraut 1979). Their behavior emphasizes individualism and has elements in common with *allocentric* tourists such as the adventurous spirit and the taste for freedom which traveling independently gives (Plog 1974, 2002).

The type and intensity of contact between visitors and residents are important variables in determining the attitudes of residents (Pearce 1996), especially when the resident works in the sector or is economically dependent on tourism (Milman and Pizam 1988). The interaction between the resident population and visitors is one of the most important factors when determining the perceptions and attitudes of residents (Murphy 1985), as well as determining the levels of tourist satisfaction through the perception obtained from their destination (Gómez et al. 1999; Nyaupane et al. 2008; Yu and Lee 2014).

The degree of acceptance of a type of tourism on behalf of the residents depends on the benefits and costs generated and the attitude of tourists towards the destination they have visited (Milman and Pizam 1988; Pearce 1996). It is expected that the residents with a more positive attitude towards tourism have higher levels of

acceptance of different types of tourism although these causal relationships may depend on the type of offer analyzed. The following hypothesis 3 is proposed:

*Hypothesis 3:* The general attitude towards tourism increases the acceptance of the different tourist offers.

Sports tourism is the main offer in this analysis and includes multiple types of sports. Golf stands out due to its impact on the environment and the level of expenditure created by tourists who tend to practice this sport.

*Hypothesis 3.1:* The general attitude towards tourism increases the acceptance of sports tourism.

Along with Montevideo, Punta del Este is one of the two ports in Uruguay with an important presence of cruiser liners (Ministerio de Ministerio 2016). It is also a destination of great interest for nautical tourism due to its international relevance and its geographical location. Both types of offers make Punta del Este a destination with great potential for tourist activities linked to the sea and can be included within the denomination of maritime tourism.

*Hypothesis 3.2:* The general attitude towards tourism increases the acceptance of maritime tourism.

Rural tourism and nature-based tourism base their offer on the natural environment and activities involving physical exercise in natural surroundings (hiking, visits, and observation of flora and fauna). In a way it is a complementary element of sports in contact with nature.

*Hypothesis 3.3:* The general attitude towards tourism increases the acceptance of nature tourism.

Sun and beach tourism is the main offer in Punta del Este, attracting a high volume of tourists who stay in hotels, rented houses, and holiday homes. This offer serves as a reference for other types of tourism analyzed.

*Hypothesis 3.4:* The general attitude towards tourism increases the acceptance of sun and beach tourism.

The causal model proposed on the basis of the hypotheses proposed is shown in Fig. 3.1. They will be subject to analysis for the case of Punta del Este.

### 3.3 Methodology

The data used, which was obtained between March and August 2016, is made up of a sample of 420 residents from Punta del Este. To achieve the highest level of representativeness of the sample, the demographic parameters of the collated questionnaires were checked to solve potential bias in the composition of the sample. The questionnaire used contained items with five-point Likert scales for responses

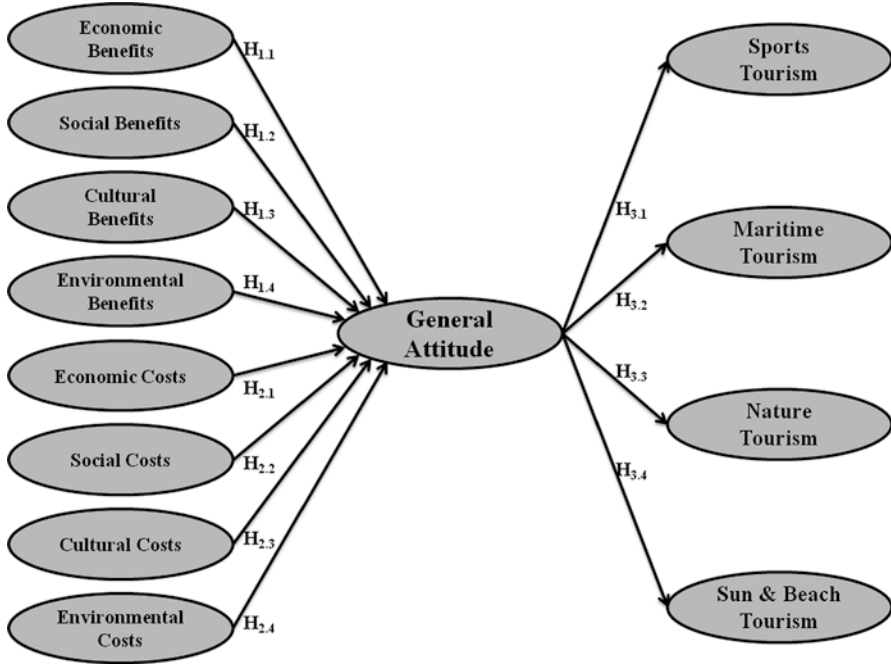


Fig. 3.1 Proposed structural model (Source: Own elaboration)

and a set of socio-demographic questions (Table 3.1). The maximum margin of error allowed was 4.88% given a level of confidence of 95%.

In the case of the constructs measuring perceptions or attitudes of residents, the causal analysis used a set of items whose possibility of response consisted of a five-point Likert scale, 1 being “totally disagree,” 3 “irrelevant,” and 5 “strongly agree.” For the constructs measuring the degree of acceptance of the types of tourism, the Likert scale ranged from 1 “unacceptable” to 5 “totally acceptable.” A first descriptive analysis was carried out on the data corresponding to the types of tourist offers (Table 3.2).

The research model has been tested using partial least squares (PLS) technique (Gursoy et al. 2002; Lindberg and Johnson 1997), a variance-based structural equation modeling (SEM) method, and complemented using DYANE 4.0 (Santesmases 2009). Partial least squares (PLS) technique is especially suitable for predictive research and theoretical developments (exploratory analysis). More precisely, this study uses SmartPLS 2.0 software for the PLS analysis (Ringle et al. 2005). While the results differ little for the alternative weighting schemes, path weighting is the recommended approach and the one used in this study. This weighting scheme provides the highest  $R^2$  value for endogenous latent variables and is generally applicable for all kinds of PLS path model specifications and estimations (Henseler et al. 2009).

**Table 3.1** Socio-demographic profile of the samples

|                    | Frequency | %      |
|--------------------|-----------|--------|
| Sex:               |           |        |
| Man                | 230       | 54.76% |
| Woman              | 190       | 45.24% |
| Age:               |           |        |
| Less than 25       | 104       | 24.76% |
| From 25 to 34      | 67        | 15.95% |
| From 35 to 44      | 81        | 19.29% |
| From 45 to 54      | 80        | 19.05% |
| From 55 to 64      | 49        | 11.67% |
| 65 or more         | 39        | 9.29%  |
| Level of studies:  |           |        |
| No studies         | 8         | 1.90%  |
| Primary studies    | 39        | 9.29%  |
| Secondary studies  | 177       | 42.14% |
| University studies | 196       | 46.67% |
| Birthplace:        |           |        |
| In the region      | 181       | 43.10% |
| Outside the region | 239       | 56.90% |
| Works in tourism:  |           |        |
| Yes                | 243       | 57.86% |
| No                 | 177       | 42.14% |

Source: Own elaboration

**Table 3.2** Degree of acceptance of the analyzed tourist offers

|                                      | Path coefficients | Standard error |
|--------------------------------------|-------------------|----------------|
| Sport tourism:                       |                   |                |
| Sports tourism                       | 4.067             | 0.934          |
| Golf tourism                         | 3.781             | 1.012          |
| Maritime tourism:                    |                   |                |
| Cruises tourism                      | 3.976             | 1.095          |
| Nautical tourism                     | 3.964             | 0.964          |
| Nature tourism:                      |                   |                |
| Nature-based tourism                 | 4.012             | 1.006          |
| Agro tourism, rural tourism, etc.    | 3.848             | 1.065          |
| Sun and beach tourism:               |                   |                |
| Family sun and beach holiday tourism | 4.533             | 0.788          |
| Houses and apartments for rent       | 4.150             | 0.822          |
| Holiday home tourism                 | 3.990             | 0.902          |

Source: own elaboration

### 3.4 Results

Before proceeding to the analysis of the proposed structural model, it is necessary to previously analyze the measurement model. Individual reliability is considered adequate when an item has a factor loading that is greater than 0.707 on its respective construct (Carmines and Zeller 1979). Construct reliability is usually assessed using Cronbach's alpha (Cronbach 1970) and composite reliability (Anderson and Gerbing 1988; Bagozzi and Yi 1988). It can be observed in Table 3.3 that values for Cronbach's alpha and composite reliability are acceptable.

To assess convergent validity, we examine the average variance extracted (AVE). AVE values should be greater than 0.50 (Bagozzi and Yi 1988) and are greater (Table 3.3). There are two approaches to assess discriminant validity (Anderson and Gerbing 1988) in PLS: no item should load more highly on another construct than it does on the construct it intends to measure; the square root of the AVE of each latent variable should be greater than its correlations with any other latent variable in the assessment (Chin 1998). Table 3.4 illustrates the final measurement model proposed.

After testing the measurement model, proceed to the analysis of the structural model and the proposed causal relationships. PLS-SEM does not assume that the data is normally distributed, which implies that parametric significance tests cannot be applied to test whether coefficients such as outer loadings and path coefficients are significant. Instead, PLS-SEM relies on a nonparametric bootstrap procedure (Davison and Hinkley 1997; Efron and Tibshirani 1993) to test the significance of estimated path coefficients. Through bootstrapping, 5000 subsamples are created with randomly drawn observations from the original set of data (with replacement).

**Table 3.3** Reliability and convergent validity

|                        | AVE   | Composite reliability | R <sup>2</sup> | Cronbach's alpha | Communality |
|------------------------|-------|-----------------------|----------------|------------------|-------------|
| Economic benefits      | 0.599 | 0.882                 | 0.000          | 0.832            | 0.599       |
| Social benefits        | 0.562 | 0.865                 | 0.000          | 0.804            | 0.562       |
| Cultural benefits      | 0.738 | 0.893                 | 0.000          | 0.828            | 0.738       |
| Environmental benefits | 0.515 | 0.809                 | 0.000          | 0.687            | 0.515       |
| Economic costs         | 0.743 | 0.850                 | 0.000          | 0.744            | 0.743       |
| Social costs           | 0.615 | 0.757                 | 0.000          | 0.696            | 0.615       |
| Cultural costs         | 0.554 | 0.832                 | 0.000          | 0.734            | 0.554       |
| Environmental costs    | 0.596 | 0.880                 | 0.000          | 0.835            | 0.596       |
| General attitude       | 0.627 | 0.871                 | 0.363          | 0.802            | 0.627       |
| Sport tourism          | 0.767 | 0.868                 | 0.067          | 0.699            | 0.767       |
| Maritime tourism       | 0.747 | 0.856                 | 0.050          | 0.662            | 0.747       |
| Nature tourism         | 0.828 | 0.906                 | 0.010          | 0.800            | 0.828       |
| Sun and beach tourism  | 0.589 | 0.811                 | 0.103          | 0.659            | 0.589       |

Source: Own elaboration

**Table 3.4** Loadings of structural models

|  | Arithmetic average | Standard deviation | Loadings |
|--|--------------------|--------------------|----------|
| <i>Part I</i>  |                    |                    |          |
| Economic benefits:   |                    |                    |          |
| Tourism generates many job opportunities for residents                                 | 4.350              | 0.780              | 0.776    |
| Tourism generates numerous business opportunities for residents and small businesses   | 4.195              | 0.837              | 0.838    |
| Tourism generates greater opportunities for investment in the town                     | 4.264              | 0.798              | 0.780    |
| Tourism generates revenue for the administration and local organisms                   | 4.293              | 0.818              | 0.734    |
| Tourism significantly increases residents' levels of income                            | 4.048              | 0.940              | 0.737    |
| Social benefits:   |                    |                    |          |
| Thanks to tourism residents have a better and wider range of leisure and entertainment | 3.740              | 1.072              | 0.685    |
| Thanks to tourism basic services are better  | 2.967              | 1.276              | 0.777    |
| Thanks to tourism there are better public services                                     | 2.855              | 1.225              | 0.786    |
| Tourism promotes the restoration and conservation of historical heritage               | 3.274              | 1.150              | 0.738    |
| Tourism improves the quality of infrastructure and public works                        | 3.555              | 1.062              | 0.757    |
| Cultural benefits:   |                    |                    |          |
| Tourism promotes the preservation of local culture                                     | 3.062              | 1.081              | 0.914    |
| Tourism promotes the preservation of local traditions                                  | 3.000              | 1.123              | 0.911    |
| Tourism promotes the cultural identity of citizens                                     | 3.167              | 1.100              | 0.741    |
| Environmental benefits:  |                    |                    |          |
| Tourism encourages the protection of natural areas                                     | 3.379              | 1.101              | 0.762    |
| Tourism converts natural resources into a source of income for residents               | 3.652              | 1.009              | 0.688    |
| Tourism is less polluting than other economic activities                               | 3.429              | 1.118              | 0.714    |
| Tourism promotes respect for the environment   | 2.936              | 1.101              | 0.705    |
| Economic costs:  |                    |                    |          |
| Tourism has led to an increase in prices and the cost of living                        | 4.076              | 1.007              | 0.716    |
| Tourism has led to an increase in the cost of housing and land                         | 4.136              | 0.945              | 0.987    |
| <i>Part II</i>   |                    |                    |          |
| Social costs:  |                    |                    |          |
| Tourism has increased the levels of public insecurity                                  | 3.119              | 1.149              | 0.892    |
| Tourism has increased the discomfort to residents                                      | 3.548              | 1.106              | 0.659    |

(continued)

**Table 3.4** (continued)

|   | Arithmetic average | Standard deviation | Loadings |
|---|--------------------|--------------------|----------|
| <b>Cultural costs:</b>  |                    |                    |          |
| Tourism hinders the enjoyment of public spaces by overcrowding them               | 3.269              | 1.164              | 0.697    |
| Tourism has made residents feel like strangers in their own town                  | 2.817              | 1.145              | 0.826    |
| Tourism has generated a negative effect on the local culture                      | 2.588              | 1.023              | 0.772    |
| Tourism has generated conflicts between visitors and residents                    | 2.969              | 1.103              | 0.674    |
| <b>Environmental costs:</b>   |                    |                    |          |
| Tourism causes serious environmental pollution problems                           | 3.057              | 1.052              | 0.782    |
| Tourism leads to the loss of local ecosystems                                     | 3.002              | 1.025              | 0.841    |
| Tourism consumes resources in excess  | 3.319              | 1.064              | 0.747    |
| Tourism has contributed to the degradation of the natural environment of the town | 3.062              | 1.063              | 0.806    |
| Tourism has caused the saturation of some natural areas                           | 3.362              | 1.077              | 0.675    |
| <b>General attitude:</b>  |                    |                    |          |
| Tourism development has been very beneficial to the town and its inhabitants      | 4.093              | 0.836              | 0.772    |
| Tourism must continue to be promoted as an essential part of the town             | 4.300              | 0.802              | 0.828    |
| Tourism is beneficial for residents' day to day lives                             | 3.988              | 0.930              | 0.802    |
| There is a better quality of life thanks to tourism                               | 3.848              | 0.996              | 0.765    |
| <b>Sport tourism:</b>   |                    |                    |          |
| Golf tourism  | 3.781              | 1.012              | 0.849    |
| Sport tourism   | 4.067              | 0.934              | 0.902    |
| <b>Maritime tourism:</b>  |                    |                    |          |
| Cruise ship tourism   | 3.976              | 1.095              | 0.874    |
| Nautical tourism  | 3.964              | 0.964              | 0.855    |
| <b>Part III</b>   |                    |                    |          |
| <b>Nature tourism:</b>  |                    |                    |          |
| Nature-based tourism  | 4.012              | 1.006              | 0.872    |
| Agro-tourism, rural tourism, etc.   | 3.848              | 1.065              | 0.946    |
| <b>Sun and beach tourism:</b>   |                    |                    |          |
| Holiday houses and apartments for rent  | 4.150              | 0.822              | 0.702    |
| Second home tourism   | 3.990              | 0.902              | 0.754    |
| Family sun and beach tourism  | 4.533              | 0.788              | 0.841    |

Source: Own elaboration

**Table 3.5** Path coefficients

|   | Path coefficients    | Standard error | T statistic | P value |
|---|----------------------|----------------|-------------|---------|
| Economic benefits → general attitude (H <sub>1,1</sub> )      | 0.373***             | 0.115          | 3.245       | 0.001   |
| Social benefits → general attitude (H <sub>1,2</sub> )        | 0.098 <sup>ns</sup>  | 0.114          | 0.857       | 0.196   |
| Cultural benefits → general attitude (H <sub>1,3</sub> )      | 0.036 <sup>ns</sup>  | 0.095          | 0.382       | 0.351   |
| Environmental benefits → general attitude (H <sub>1,4</sub> ) | 0.067 <sup>ns</sup>  | 0.109          | 0.615       | 0.269   |
| Economic benefits → general attitude (H <sub>2,1</sub> )      | 0.134 <sup>ns</sup>  | 0.133          | 1.015       | 0.155   |
| Social benefits → general attitude (H <sub>2,2</sub> )        | 0.018 <sup>ns</sup>  | 0.098          | 0.184       | 0.427   |
| Cultural benefits → general attitude (H <sub>2,3</sub> )      | -0.228*              | 0.111          | 2.053       | 0.020   |
| Environmental benefits → general attitude (H <sub>2,4</sub> ) | -0.073 <sup>ns</sup> | 0.105          | 0.697       | 0.243   |
| General attitude → sport tourism (H <sub>3,1</sub> )          | 0.258**              | 0.090          | 2.863       | 0.002   |
| General attitude → maritime tourism (H <sub>3,2</sub> )       | 0.224*               | 0.107          | 2.098       | 0.018   |
| General attitude → nature tourism (H <sub>3,3</sub> )         | 0.102 <sup>ns</sup>  | 0.124          | 0.823       | 0.205   |
| General attitude → sun and beach tourism (H <sub>3,4</sub> )  | 0.321***             | 0.090          | 3.589       | 0.000   |

Source: own elaboration

\**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001

*ns* not significant

The subsample is then used to estimate the PLS path model by calculating the average values of the parameters obtained in the 5000 samples and compared with those obtained from the original set of data. The parameters estimated from the subsamples are used to derive standard errors for the estimates. With this information, t-values are calculated to assess each estimate's significance (Hair et al. 2014).

To determine the critical values, a Student's t distribution with 4999 degrees of freedom and one tail has been used (as the direction of the relationship was defined). Significance analysis results for the different direct causal relationships, both through the use of Student's t values and using non-parametric techniques (Henseler et al. 2009), are detailed in Table 3.5.

Based on the results (Table 3.5), only the economic benefits (Hypothesis 1.1) have a significant effect on the general attitude of the residents of Punta del Este and Maldonado. This reminds us of the importance that the economic improvements most directly perceived by residents (more jobs, investment, and opportunities of business) have on their attitude towards the sector (Brayley et al. 1990; Gursoy et al. 2002; Jurowski et al. 1997; Lankford and Howard 1994; Liu and Var 1986; Teye et al. 2002; Um and Crompton 1987). Social benefits (Hypothesis 1.2) do not have a significant effect on residents' general attitude, therefore differing from the results of some previous studies (Gursoy et al. 2002; Keogh 1990; Lankford and Howard 1994; Perdue et al. 1987). Cultural benefits (Hypothesis 1.3) and environmental benefits (Hypothesis 1.4) did not have significant effects on the general attitude towards tourism either.

Economic costs (Hypothesis 2.1), social costs (Hypothesis 2.2), and environmental costs (Hypothesis 2.4) do not have a significant effect on the general attitude towards tourism, not coinciding with the results of previous studies (Jurowski et al. 1997; Keogh 1990; Long et al. 1990; Milman and Pizam 1988; Prentice 1993).



Only cultural costs (Hypothesis 2.3) have a negative and significant effect of 0.05 on the general attitude. The most plausible explanation is that the importance tourism has for the well-being of residents is such that costs are disregarded when residents take a stance.

The general attitude of residents towards tourism has significant and positive effects (Table 3.5) on sun and beach tourism (Hypothesis 3.4), sports tourism (Hypothesis 3.1), and maritime tourism (Hypothesis 3.2), but there is no significant effect on nature tourism (Hypothesis 3.3). The two most important ( $\beta > 0.250$ ) and significant ( $P > 0.01$ ) effects from these are on sun and beach tourism and sports tourism. These results would imply recognition of the importance of sun and beach tourism for the tourist destination.

The degree of acceptance of sports tourism depends largely on the attitude of residents to tourism in general, something that does not happen with nature. These results could be interpreted as if there are types of tourism whose degree of acceptance is an “automatic” or “politically correct” response, as is the case of nature tourism. In this case, both the most critical about tourism and the most enthusiastic show similar responses. In other cases, such as sun and beach tourism and sports tourism, the degree of acceptance of the offer significantly depends on the residents’ analysis of the tourism sector, being a somewhat more “rational” response or the result of a personal analysis rather than a “learned” response.

Another possible explanation for the results is that nature tourism is seen as being respectful towards residents and their environment and this offer is therefore tolerated. However, the population is contrary to the tourism sector. On the other hand, sun and beach tourism and sports tourism are only tolerated for what they contribute to the local economy.

Finally, it should be considered if the explanatory power of the degree of acceptance of the various analyzed tourist offers would improve by implementing a direct relation between the perception of benefits and costs generated by tourism and the degree of acceptance of different types of tourism. In order to do so the analysis was repeated with the new structural models, obtaining the results shown in Table 3.6.

Table 3.6 shows that the vast majority of causal relations raised in this case are not significant. In the case of sports tourism, only cultural costs show a negative and significant effect on the degree of acceptance of this type of offer. There is a positive and significant effect of economic benefits on maritime tourism and a negative and significant effect of environmental costs in the same type of offer. No causal relation is significant in the case of nature tourism. The economic benefits have a positive and significant effect on the degree of acceptance of sun and beach tourism, and cultural costs have a negative and significant effect on this same type of tourism. The few significant causal relations have significance levels that do not reach the level 0.01, indicating that they are possibly causal relations of little importance and therefore not possible to generalize.

The alternative analysis proposed makes it possible to note that the causal model initially proposed has a higher explanatory capacity about residents’ behavior than the alternative approach with different types of offers posed as a variable directly dependent on the general perceptions of benefits and costs.

**Table 3.6** Alternative models

|  | Path coefficients    | Standard error | T statistic | P value |
|--|----------------------|----------------|-------------|---------|
| Economic benefits → sport tourism              | 0.089 <sup>ns</sup>  | 0.125          | 0.715       | 0.237   |
| Social benefits → sport tourism                | 0.051 <sup>ns</sup>  | 0.139          | 0.367       | 0.357   |
| Cultural benefits → sport tourism              | 0.080 <sup>ns</sup>  | 0.133          | 0.599       | 0.275   |
| Environmental benefits → sport tourism         | 0.104 <sup>ns</sup>  | 0.135          | 0.768       | 0.221   |
| Economic costs → sport tourism                 | 0.053 <sup>ns</sup>  | 0.108          | 0.487       | 0.313   |
| Social costs → sport tourism                   | 0.007 <sup>ns</sup>  | 0.143          | 0.049       | 0.481   |
| Cultural costs → sport tourism                 | -0.197 <sup>φ</sup>  | 0.135          | 1.454       | 0.073   |
| Environmental costs → sport tourism            | 0.036 <sup>ns</sup>  | 0.128          | 0.279       | 0.390   |
| Economic benefits → maritime tourism           | 0.165 <sup>φ</sup>   | 0.128          | 1.289       | 0.099   |
| Social benefits → maritime tourism             | -0.005 <sup>ns</sup> | 0.141          | 0.035       | 0.486   |
| Cultural benefits → maritime tourism           | 0.128 <sup>ns</sup>  | 0.115          | 1.108       | 0.134   |
| Environmental benefits → maritime tourism      | 0.089 <sup>ns</sup>  | 0.127          | 0.706       | 0.240   |
| Economic costs → maritime tourism              | 0.078 <sup>ns</sup>  | 0.111          | 0.702       | 0.241   |
| Social costs → maritime tourism                | 0.019 <sup>ns</sup>  | 0.146          | 0.127       | 0.449   |
| Cultural costs → maritime tourism              | 0.053 <sup>ns</sup>  | 0.136          | 0.389       | 0.349   |
| Environmental costs → maritime tourism         | -0.237 <sup>*</sup>  | 0.121          | 1.966       | 0.025   |
| Economic benefits → nature tourism             | 0.145 <sup>ns</sup>  | 0.142          | 1.021       | 0.154   |
| Social benefits → nature tourism               | -0.062 <sup>ns</sup> | 0.165          | 0.376       | 0.353   |
| Cultural benefits → nature tourism             | 0.098 <sup>ns</sup>  | 0.136          | 0.720       | 0.236   |
| Environmental benefits → nature tourism        | 0.038 <sup>ns</sup>  | 0.143          | 0.267       | 0.395   |
| Economic costs → nature tourism                | 0.041 <sup>ns</sup>  | 0.132          | 0.313       | 0.377   |
| Social costs → nature tourism                  | 0.034 <sup>ns</sup>  | 0.134          | 0.253       | 0.400   |
| Cultural costs → nature tourism                | -0.097 <sup>ns</sup> | 0.134          | 0.724       | 0.235   |
| Environmental costs → nature tourism           | 0.038 <sup>ns</sup>  | 0.128          | 0.301       | 0.382   |
| Economic benefits → sun and beach tourism      | 0.173 <sup>φ</sup>   | 0.128          | 1.352       | 0.088   |
| Social benefits → sun and beach tourism        | 0.087 <sup>ns</sup>  | 0.136          | 0.639       | 0.261   |
| Cultural benefits → sun and beach tourism      | -0.079 <sup>ns</sup> | 0.123          | 0.640       | 0.261   |
| Environmental benefits → sun and beach tourism | 0.009 <sup>ns</sup>  | 0.140          | 0.064       | 0.474   |
| Economic costs → sun and beach tourism         | 0.100 <sup>ns</sup>  | 0.115          | 0.870       | 0.192   |
| Social costs → sun and beach tourism           | -0.061 <sup>ns</sup> | 0.137          | 0.442       | 0.329   |
| Cultural costs → sun and beach tourism         | -0.218 <sup>*</sup>  | 0.130          | 1.685       | 0.046   |
| Environmental costs → sun and beach tourism    | -0.081 <sup>ns</sup> | 0.120          | 0.673       | 0.250   |

Source: Own elaboration

<sup>φ</sup> $p < 0.1$ ; <sup>\*</sup> $p < 0.05$

*ns* not significant

### 3.5 Conclusion

When analyzing the effect of residents' attitude on the degree of acceptance of the different tourist offers, it can be seen that there are no significant effects on nature tourism. In the other three types of tourism, the relations are significant, although the effects are more important and significant in the case of sports tourism and sun and beach tourism, which acts as a reference as it is the main type of tourism in Punta del Este. Nature tourism has a high degree of acceptance by residents but it is a response which has little to do with the tourism analysis process carried out by residents. It is possibly a more "automatic" response and caused less by a critical analysis of tourism.

Based on the results of this study, it seems reasonable to prioritize promoting sports that take advantage of the existing infrastructure and having the ability to attract tourists, generating significant economic improvements with a minimal negative impact, particularly on the possibilities for enjoyment of the destination by residents. It should be noted that the degree of acceptance of sports tourism is a reflection of residents' attitude towards tourism, as is the case with the tourist destination's main offer which is sun and beach.

Future studies should repeat the analysis with new types of tourism to try to determine when the acceptance of a type of tourism is the result of the attitude towards tourism or a response with no connection to the residents' cost-benefit evaluation. In relation to this point, it should be analyzed if the degree of acceptance of offers with no connection to the general attitude towards tourism is due to a learned response or a perception of respectful tourism with the local inhabitants. It is also necessary to analyze the different subtypes of tourism, for example, various types of sports tourism.

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## Chapter 4

# Customer 360° Method: Assessment of Customers in Fitness Centres

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**Abstract** The efficient management of sports organisations requires a cycle of three stages. The first is an adequate planning of activities, human resources, events and all systems that can be planned in a coordinated way prior to implementation. The second is the implementation of proposed and planned actions. The third is the evaluation and analysis of the executed actions. Whilst in current sports management the first two stages are usually covered successfully, the third process is often ignored, so organisational health and success are limited. The Customer 360° Method (C360-M) guides and facilitates this process of analysis through four pillars: (a) evaluation of the variables required according to the type of customer, (b) creation of reports according to the type of customer, (c) analysis and identification of improvement possibilities by customer type and (d) implementation and follow-up of strategies designed for the improvement of each type of customer. The analysis includes the top five types of customers and processes: potential customers, external customers, internal customers, former customers, business customers and processes. Thus, for each type of customer, the *C360-M* examines different decision-making aspects for the organisation through validated and reliable instruments, so that at all times it is possible to evaluate what is really susceptible to improvement. This systematisation of the evaluation allows the manager to close the management cycle and the organisation to progress in the future planning and execution.

**Keywords** Management • Fitness centre • Customer • Loyalty • Assessment • Tools

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## 4.1 Commercial Development in Fitness Centres

Barros and Gonçalves (2009) claim that fitness centres are organisations of services that sell experiences, also being a clear example of organisations providing sports activities, whose mission according to Gómez et al. (2007) is to satisfy the interest of a community in doing physical activities and socialising through their participation in sports activities. Equally, this is a profit-making service in the private sector (Chelladurai 1985), where according to Ulseth (2004) the payment of monthly subscriptions by customers is expected in exchange for the sports service. The number of people involved in this sector is quite significant. The latest data from IHRSA (2016) shows that in the United States there are 36,180 clubs that provide their services to 55.3 million customers. Likewise, in Europe there has been exponential growth in recent years; in particular, there are 50,000 clubs that account for a turnover of 30,000 million dollars. Their participation, as per the number of customers (52 million participants), makes this region the most profitable in the world.

Research aimed at having a closer view of what is actually happening in this sector has grown; in all probability, this is due to the exponential increase in the number of sports facilities and invoicing and the number of people going to these facilities. Specifically, the publications in academic journals continue to grow and to examine the variables that have an impact on the development of a successful business (García-Fernández et al. 2014). In the same way, we are witnessing an increase in the number of sectoral reports undertaken by consulting companies. Nevertheless, whilst it is true that some of these reports are starting to be professionalised by the union of consulting companies and research groups, in general many of the analyses carried out in the clubs lack a methodology and the use of tools with some validity. These are studies mainly focused on one single area or one single type of customer. For this reason, carrying out a more global analysis of all the participants of the organisation, in a rigorous but simple manner, becomes necessary in order to have stable and economically sustainable organisations. Moreover, whilst it is true that the fitness sector usually establishes processes of planning and the implementation of the services correctly, there are still many possible improvements in the processes of analysis and assessment.

## 4.2 The Customer 360° Method as an Assessment Tool of the Customers in Fitness Centres

Research shows a dropout rate of more than 35% of the customers of fitness centres, where approximately 50% of the new customers abandon the facilities between their first 3 and 6 months (Myers 2005). We also find differences amongst the studies with regard to the loyalty of the customers (continuity) and to the results of the performance of these organisations (Pinillos 2004) which require an in-depth analysis. In this sense, the dropout of customers may be due to the management of the organisation since 70% of the reasons that make the users cancel their subscriptions to fitness centres are controllable (Grantham et al. 1998).

Under this idea, we could raise the following questions:

- What is the impact of the management of the organisation on the loyalty of the customers?
- Does the organisational management influence the results of the organisation?
- Does the perception of the customer have an impact on the success of the organisation?

In this way, an adequate management of the resources of the organisation should lead to the creation of value. In fact, when value is created, this means the organisation is obtaining good results and that the customer understands that he or she must continue consuming their products or services. Therefore, learning through continuous assessment helps the organisations become more competitive. In conclusion, it helps the organisations to create an organisational knowledge through continuous analysis. Thus, a good management of knowledge will improve the satisfaction of the customer (Al-Athari and Zairi 2001), making profits grow (Rahman 2004), a process in which knowledge has a main role in earning the loyalty of the customers (Lillo et al. 2007). For this reason, knowledge becomes the pivotal actor of the intangible resources creating value in an organisation (Roslender et al. 2006).

In this regard, the organisations using organisational abilities to manage knowledge, where its creation and exchange become key abilities, also develop more value for the customer (Lee and Choi 2003), resulting in an impact on the organisational performance of the company (Schulz and Jobe 2001). Actually, one of the abilities that boosts the creation of knowledge is organisational learning, which has been considered to be one of the abilities with the highest impact on the management of knowledge (Zack et al. 2009), since in order to create it learning is required (Vera and Crossan 2003). On the other hand, the organisational climate and the organisational culture are also regarded as key abilities to manage knowledge as, in their creation, trust and cooperation must exist amongst the members of the organisation (Liebowitz 1999). Therefore, dialogue and communication amongst employees are required to create and to transfer knowledge, which must be encouraged by an environment built by the organisation itself. Similarly, the management of human resources is also one of the main abilities to motivate and take care of the members in an organisation. For this reason, assuming knowledge lives in people (Sveiby 1997), if an employee is not motivated, this employee will not be able to create nor transfer knowledge, so having a negative impact on its management. Thus, job satisfaction is essential to make the transmission of knowledge and its development possible in the organisation.

Likewise, as a link between creation and perception, if the management of knowledge improves the performance of the organisation, it also seems that these results will be due to the increase, and repetition, of purchase by their customers. Hence, it is demonstrated that the loyalty of customers is based on the perception of value (Martín et al. 2004), a concept made by the global assessment of the consumer about the usefulness of a product, which is based on the perception of what is given in exchange for what is received (Zeithaml 1988). On the side of the benefits, we would find the quality of the service and the relational benefits. On the side of what is being offered, however, we find the economic and non-economic aspects, the

former being connected with the price the customers are willing to pay and the latter with the convenience of the service, which is linked to the effort of going to the sports facilities or the time the customer may need to arrive (Berry et al. 2000; Voss et al. 1998). In connection with the perceived value, it is agreed that this is an evident precursor of satisfaction understood as an evaluation that takes place after the consumption (Hu et al. 2009), whilst the perceived value would influence the different stages of the purchasing process (Sweeney and Soutar 2001). Similarly, satisfaction has positive results in earning loyalty from customers (Murray and Howat 2002; Oliver 1999b), so if a customer is satisfied, it is more likely that this customer will use the service or buy the product again (Bernhardt et al. 2000).

Based on the aforementioned information, if the performance of an organisation is determined by the creation of knowledge through continuous analysis and the perceived value of the customer, it seems that both concepts are connected. For this reason, the Customer 360° Method (hereafter C360-M) aims at analysing the different types of customers that may have an impact on the organisation, to later be examined, so that the organisation is able to draw conclusions to foster a continuous improvement.

### *4.2.1 The Types of Customers in the Customer 360° Method*

Drucker (1988) states that what is defined and measured is improved. The C360-M starts from a global approach that gathers all those groups of people with which the sports facilities deals and who, to a greater or lesser extent, have an impact on the income of the organisation. The model provides a useful tool to manage fitness centres as it offers decisive indicators for the management and, additionally, it provides the managers with results to be considered so as to perform organisational changes.

The C360-M is based on the evaluation and analysis of the five main types of customers and processes: prospective customers, external customers, internal customers, former customers, business customers and the processes. Both the five groups of customers and the processes are the elements on which the success of the organisation will depend. For this reason, a thorough knowledge of these groups through continuous assessment is of great interest for the managers of fitness centres. Figure 4.1 shows the five types of customers and the processes.

Regarding prospective customers, these are the ones that may subscribe to the sports services but have not signed up for the time being. The main goals sought at this point are identifying prospective customers, recognising the characteristics of these prospective customers, analysing their geographical areas, identifying the latent demand and identifying the demand for sports activities.

External customers are those people who do consume the sports services of the organisation, and therefore it is essential to listen to them. The objectives regarding this type of customer are analysing the perceived quality of the services and the facilities of the fitness centre, evaluating perceived satisfaction, examining perceived value, analysing the experience in the fitness centre and analysing the subjective and objective loyalty of each customer.

**Fig. 4.1** Types of Customers in C360-M



The third type of customer refers to the internal customers. This profile corresponds to the human resources of the organisation, its number and competences depending on the business model posed. Accordingly, the objectives presented are analysing the work climate, the organisational culture and job satisfaction, estimating the credibility of the internal customers versus the external ones and examining the characteristics of the prospective leaders amongst human resources.

Former customers are people who have been users of the sports services of the fitness centre and can therefore provide an extremely valuable view of the organisation. This analysis is performed when the customer unsubscribes and is undertaken months after they leave the fitness centre. The aim is to examine the causes of the dropout, to evaluate the perception after unsubscribing, to evaluate why the customer left and to analyse where the former customer is going and where he is.

The fifth group is that of the business customers who are members of the suppliers of equipment, or other companies who are suppliers of the sports organisation. For this group, the objectives are to know their perception of the brand of the fitness centre, to examine how the brand is evaluated in the market and to examine the positioning of the brand in the sector.

Lastly, the processes that may have an impact on these five groups of customers are evaluated, such as the calls made, the e-mails sent, the processes of subscribing-contact-unsubscribing and the relation of external customer-internal customer. Then, the objectives pursued are examining the functioning and optimising of the processes of subscribing, unsubscribing, e-mails, calls and contacts; verifying that the processes are being performed according to the protocols established; and evaluating the possible improvements in critical processes.

## ***4.2.2 The Approach of the Customer 360° Method***

The methodology implemented in the C360-M is based on four essential processes. First of all, the evaluation of the variables required according to the type of customer is performed. After, the reports according to the type of customer are created. Then, the proposals for improvements according to the type of customer are made.

Finally, proposals and monitoring plans for the improvement in each type of customer are laid out (Fig. 4.2).



**Fig. 4.2** Processes in the C360-M

At the same time, these four processes are developed in five stages: conceptualisation, recollection, exploitation, interpretation and mobilisation. At the conceptualisation stage, the aim is to consolidate the key indicators for each of the customers and internal processes and also the objectives for each indicator using scales. Moreover, throughout this stage a frequency for the recollection of data is established. The recollection deals with the handling of the tools for the recollection of data (e.g. questionnaires, surveys) according to the method and frequency established during the conceptualisation. Likewise, the transmission of data to an online platform is performed. The exploitation consists of the analysis of the data and the creation of tables and figures to make their interpretation easier. The data is compared based on the scales defined at the stage of conceptualisation. The interpretation is the connection of the data obtained from the customers with the data obtained through the analysis of the processes. The aim of this stage is to achieve better and higher results. The mobilisation is used to detect opportunities for improvement, establishing proposals for changes in the internal processes aimed at achieving the goals set for each type of customer.

#### 4.2.2.1 Tools Used According to the Type of Customer

The tools and methodology developed for each type of customer are presented below. In Table 4.1 we see a summary of the methodology.

##### Prospective Customers

There are few studies of the analysis of prospective customers in fitness centres. Most of these have been carried out to identify the obstacles perceived by middle-aged or elderly women that prevent them from taking up physical activities. Actually, most publications show this latent demand (people willing to do physical activities) as the main customer to start a programme of physical activities in a sports facility. However, the lack of time due to the increase of personal and professional responsibilities appears as a significant barrier to these people undertaking physical activities (García Ferrando and Llopis 2011). Nonetheless, the adaptability of the schedules or the diversity of activities for adults and children may be tools that result in an increase of such sports activities (Martín et al. 2015; Martínez del Castillo et al. 2005).

**Table 4.1** Methodology of C360-M

|                      | Approach                                 | Tool                 | Contact               | Universe   | Sampling    | Sample  |
|----------------------|--|----------------------|-----------------------|--|-------------|---|
| Prospective customer | Descriptive-cross-sectional              | Questionnaire        | Self-managed survey   | Target population 15 min in circumference                                | Convenience | Depends on the population of the neighbourhood                          |
| External customer    | Descriptive-cross-sectional              | Questionnaire        | Online                | All the people subscribed to the services in the facilities              | Convenience | Depends on the total number of external customers of the fitness centre |
| Former customer      | Descriptive-longitudinal/cross-sectional | Questionnaire        | Online                | All the people that cancelled their subscription during the last 3 years | Convenience | Depends on the dropout rates of the customers                           |
| Internal customer    | Descriptive-cross-sectional              | Questionnaire survey | Face-to-face – online | All the internal customers of the facilities                             | Convenience | 100% of the universe  |
| Business customer    | Descriptive-cross-sectional              | Questionnaire survey | Face-to-face          | Suppliers  | Convenience | To be determined. Between 4 and 10                                      |
| Processes            | Descriptive-longitudinal                 | Checklist            | Face-to-face          | Procedures   | All         | All the standardised processes  |

The most recent study on the sports habits of Spanish people indicates that 46.2% of Spanish people do physical activities (Ministry of Education, Culture and Sport 2016), which means that 53.8% do not. Thus, identifying the reasons preventing them from going to a sports facility could determine which are the services that should be offered to obtain an increase in these figures. Specifically, the C360-M includes an evaluation of the closest population (maximum 15 min away from the fitness centre) in order to discover prospective customers who are not undertaking physical activities. In order to do so, these prospective customers are studied once a year, establishing a representative sample of the population in the neighbourhood of the sports facility. A self-managed survey is used, based on the work of Martín et al. (2015). With the aim of making these people easy to assimilate by the management of the fitness centres, descriptive and contingency analyses are used for a greater detection of the needs of the prospective customers in the neighbourhood.

### External Customers

Most research published in the fitness sector has been connected with a sample of external customers (García-Fernández et al. 2014). Amongst the main variables to know about the external customers, the most significant ones are the perceived quality and the perceived value, satisfaction and behavioural intentions.

Although quality and satisfaction usually become connected, speaking about quality is not the same as speaking about satisfaction; the main difference between the two is that the former is a global evaluation that is built over time, whilst the latter is given at the specific moment of the truth or the discovery of the service. Conceptualising quality is therefore a complex task as it is a very personal, intangible and abstract term (Cronin and Taylor 1992), referring to the difference between the service expected and the one received. All in all, highlighting the points related to quality is a noteworthy element for the fitness centres in order to continue being profitable (Papadimitriou and Karteroliotis 2000).

In the world of sports, quality has become one of the most studied concepts, and many tools are used for this end (e.g. Dhurup et al. 2006; Kim and Kim 1995; Papadimitriou and Karteroliotis 2000). Nevertheless, as there are many limitations, different scales have appeared to analyse quality and also research determining different dimensions of quality in the world of sports and, in particular, in the fitness industry (e.g. Avourdiadou and García 2014; Avourdiadou and Theodorakis 2014; García-Fernández et al. 2017; Hsueh and Su 2013; Theodorakis et al. 2014).

With regard to satisfaction, the interest in its study has grown over the years both in literature and amongst managers and businessmen, mainly because it is considered the precursor of retention (Oliver 1999a). Satisfaction is considered as a post-consumption answer or evaluation (Kotler 1991). Published studies have provided evidence for the relationship between quality and satisfaction, quality being the

precursor of satisfaction. Its importance also lies in the positive impact that satisfied customers have on the economic and competitive situation in the markets through the increase in the volume of acquisition of products, the decrease in the costs of communication and attraction of new customers (Payne and Pennie 2005), the low cost of keeping a loyal customer (Nauman 1995), the creation of entry barriers (Grönroos 2000) and the construction of a brand (Nysveen et al. 2005). Also Galen et al. (2005) remind us that satisfaction is a forecast of future intentions and that a satisfied customer usually shares the experience with five or six people and an unsatisfied one with ten (Zairi 2000). Hence, a satisfied customer is more prone to purchase or use the service again (Bernhardt et al. 2000). In the sports sector, there are numerous studies that have evaluated satisfaction (e.g. Alexandris et al. 1999; Chelladurai and Chang 2000; García et al. 2012) which suggests that this is a noteworthy element to be analysed.

Another variable that must be evaluated in external customers is the perceived value. The term value starts to be understood as the centre of the global strategy of the organisation, or as it has been referred to as “the heart of the modern approach to marketing” (Nilson 1992, p.32). Zeithaml (1988) defines it as “the customer’s overall assessment of the utility of a product based on perceptions of what is received and what is given” (p. 14). Such a global assessment is based on what the customer is willing to offer versus what is received in exchange (Oliver 1999a); this is to say, based on positive and negative aspects. In the sports sector, there are studies published to discover the perceived value of the spectator or customer. In the area of the fitness centre specifically, there are few publications. Amongst them, the most important ones are those by Avourdiadou and Theodorakis (2014), Bodet (2012), García-Fernández et al. (2016a), García-Fernández et al. (2016b), García-Fernández et al. 2017 and Theodorakis et al. (2014).

Finally, the behavioural intentions measure the loyalty of the customer. Oliver (1999b) understands that loyalty is “a deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing despite situational influences and marketing efforts having the potential to cause switching behaviour” (p.34). The most important aspect of loyalty is its direct influence on the profitability of the organisation, so knowing the loyalty of the customer is essential. As a matter of fact, there are several studies of the fitness industry that have examined it (e.g. Avourdiadou and Theodorakis 2014; García-Fernández et al. 2016a; García-Fernández et al. 2017; Theodorakis et al. 2014) due to the low loyalty of customers in these sports organisations (García-Fernández et al. 2014).

Based on the aforementioned, the assessment of the external customer in the C360-M will be performed with the variables of perceived quality, perceived value, satisfaction and future intentions. The scales for their measurement are based on the work of Avourdiadou and Theodorakis (2014), García-Fernández et al. (2016a), García-Fernández et al. 2017 and Theodorakis et al. (2014). The procedure consists of a descriptive, cross-sectional study carried out twice a year



through an online questionnaire. As the data is online, it is directly recorded in a database, with which simple analyses are carried out with contingency tables and significant differences.

### Internal Customers

Internal customers, or employees, have also been some of the most analysed customers in the fitness sector. In the analysis of internal customers, one of the main scholars is Dr. Antonio Campos, who has been evaluating the characteristics of these customers for many years. Precisely, his most recent studies assess job satisfaction as the decisive element in the management of human resources in sports organisations (Bernabé et al. 2016). And job satisfaction is even a determining element in the quality of the service (Campos-Izquierdo 2010).

Furthermore, numerous authors claim that organisational learning creates new knowledge that helps to achieve a competitive advantage in the organisation, but its creation does not mean this knowledge is effective and efficient, so the management of knowledge will have the aim of adapting it to achieve the goals pursued by the organisation (Theriou and Chatzoglou 2008). The companies with better learning skills will also be the most sensitive ones to changes and market trends (Tippins and Sohi 2003), being more flexible and foreseeing change, since organisational learning makes the creation of new knowledge possible and useful for decision-making (Palacios et al. 2010). Thus, linked to learning, the organisational culture emerges. Its significance is due to its role in the daily routine of the organisation, which some people argue describes the essence of the company. In such a way, culture aims at having a substantial impact on the attitudes and behaviour of the individuals of the organisation and, therefore, on its efficacy (Doherty and Chelladurai 1999). According to MacIntosh and Doherty (2005), it can be described as an underlying pattern of the shared assumptions, values and beliefs, which are essential for the way of thinking about and acting on the problems and opportunities in an organisation and which are shown in the processes of the organisation and the behaviour of its members. As Maitland et al. (2015) demonstrate, the interest in sports management literature has grown, and there are a number of different studies in fitness centres (MacIntosh and Doherty 2005, 2007, 2010; MacIntosh and Walker 2012).

Concurrently, the organisational climate stands as an element promoting the relationships amongst the employees in organisations (García-Tascón 2008). Its significance falls on the increase of productivity, the reduction of absenteeism and the improvement of perceived quality (Bernal et al. 2015). Nevertheless, it changes according to the type of sports organisation (Escamilla-Fajardo et al. 2016) so its analysis must be performed on internal customers.

Based on the aforementioned literature, the evaluation of the internal customer in the C360-M is based on the tools proposed by Warr et al. (1979), Bernabé et al. (2016), Campos-Izquierdo (2010), MacIntosh and Doherty (2010), García-Tascón (2008) and Peña-Suárez et al. (2013). Face-to-face questionnaires and surveys are used, as well as online questionnaires. The objective is to analyse all the internal customers of the organisation twice a year to find improvements.

### Former Customers

The evaluation of the perception of former customers is essential in order to have first-hand knowledge of the perception of customers who have left and in this way to finding out why they left the fitness centre. For this reason, the rotation of customers is a priority in the fitness sector and also a concern (Bodet 2012).

Most studies published indicate that dropouts are due to the lack of time or other leisure preferences, the lack of interest or little motivation (Ministry of Education, Culture and Sport 2016; Gómez-López et al. 2011). Similarly, MacIntosh and Law (2015) pointed out that the main cause of dropouts in fitness centres was a change from a fitness centre to another fitness centre which may be due to the lack of quality or lack of satisfaction in the customer. Nuviala et al. (2012) proposed a scale in order to understand in more detail the real reasons that lead to customers leaving.

Based on the above, so as to measure former customers, the C360-M uses an adaptation of Nuviala et al. (2012) in order to find out the reason for leaving at the time of leaving. It is a descriptive analysis that makes use of tables of contingency and differences. The collection of data is online and is done 12 times a year (once a month). Likewise, twice a year, an analysis of all those former customers who have been in this category for more than 6 months is performed in order to analyse their situation at that point. This analysis is also online.

### Business Customers

The evaluation of the customers that contribute to the success of a fitness centre should not only be performed on those who execute or provide the sports service. In fact, the knowledge of those with a more global perspective and experience from other organisations is essential to bringing the organisation into the market. Hence, first-hand knowledge of the opinion which the main suppliers have about the organisation provides a more specific view and is of interest for the manager of the sports organisation.

However, there are no studies published for this type of customer. In particular, this type of customer has never been rigorously evaluated. Therefore, the tool used for its analysis in the C360-M is an ad hoc questionnaire exclusively created for this model.

The analysis is performed once a year, coinciding with the main professional fairs of the fitness market which are usually organised in March–April (please see Gym Factory, <http://www.gymfactoryfairs.com/spain/>, and FIBO Cologne, <https://www.fibo.com/?sprache=englisch>). The tool used consists of questions about the opinion of the business customer on the positioning of the company evaluated. It also asks the customer to position the company in the market, identifying the strengths and weaknesses of the fitness centre evaluated. The number of business customers evaluated depends on the importance of the company, but it varies from four to ten.

## Processes

Once the evaluations of all the customers are completed, it is essential to analyse the elements that need a protocol so that the members of the organisation can provide a standardised service to prospective, external and former customers.

As happens with business customers, there are no studies of the tools that should be assessed. For this reason, the tools used are the ones specifically designed for the C360-M, whose base is the analysis of the procedure established by the company. In this context, there is an evaluation of the text messages, the attention and interaction of internal customers with prospective – external – former customers. This evaluation takes place 12 times a year in order to detect possible deviations from the key processes.

### 4.2.2.2 Reports, Changes and Monitoring

Once the analysis is completed, it is time to write up the reports according to the type of customer. In order to do so, a complete report is handed over to the management, a report that must contain detailed information for each indicator, along with figures, in order to clearly determine the potential shortages on each type of customer. Similarly, an executive report is delivered. This is a summary of the key indicators in one page, through tables that compare the results of the analysis with the objectives set in the scales (conceptualisation stage). Such a report makes use of the symbology of the colours of traffic lights in order to make the reading of the data easier. With such colours, with the naked eye, we can establish where to improve, and the management will be able to summarise what the current position of its customers is versus the desired positioning.

On the basis of the information in the reports, different workshops will be organised for the key people in the management of the fitness centre. The main goals of the workshops can be summarised as follows:

- Interpreting the results given by the reports;
- Comparing the results of each indicator with the goals set
- Detecting possible causes of the deviations of the results from the goals set;
- Establishing opportunities for improvement
- Defining and scheduling specific actions to achieve the objectives set

The methodology in the workshops will be a participative methodology that will be adapted according to the participants and the results obtained.

Based on what has been assessed and the new goals set, there will be a monitoring where new indicators will be established according to the results obtained. This way, the cycle of the C360-M will be closed and a new cycle will begin. In short, this is a continuous improvement process.

### 4.3 Conclusions

In conclusion, and relating to each type of customer, the C360-M analyses a set of decisive aspects for an organisation with valid and reliable tools, so that there is a continuous assessment of the points that can be improved. In this way, the method aims at being a tool enhancing fitness centres so that, once applied, the sports manager can close the management cycle and the organisation improves in its future planning and implementation.

For this reason, once the first cycle is completed and the actions for improvement implemented, a second cycle will be opened. Generally, each cycle is planned on an annual basis. The results the management will achieve applying the C360-M will depend on the opportunities for improvement detected. Nonetheless, the main results the fitness centres would see, in general terms, would be improvements of the internal processes, the external perception of the organisation, the satisfaction of the customer, an increase in the ratio of acquisition of customers and their loyalty and better operating profits.

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# Chapter 5

## Evaluation of Service Quality at a Sport Center: Case Study

José Álvarez-García, Cristiana Oliveira, and Carlos Rueda-Armengot

**Abstract** At present, in the sports services industry, “perceived quality of service” becomes an important concept for its managers, allowing, on the one hand, to hear and design services taking into account its users’ requirements, a key point to ensure its survival, and, on the other hand, to detect weaknesses and establish the necessary improvement actions, thus starting the path to continuous improvement within the organization. The objective of this chapter is to know the level of quality of service perceived by users of a sports center (case study), as well as to analyze the satisfaction they experience with the service received. We also analyzed whether there is a correlation between perceived quality and satisfaction. The methodology used is a descriptive analysis of a sample of 206 clients from a population of 1512 subscribers using the Scale of Perception of Sports Organizations (EPOD) as a measuring instrument. The results show that the overall quality of service with an average of 4.43 out of 5 is very high and corresponds to a high satisfaction level (4.48). The five dimensions of the scale show an average higher than 4. In addition, it was verified that there is a high correlation between perceived quality and satisfaction. This study has important implications for the Sports Center, its customers were heard and the weaknesses of the service provided were detected, enabling to establish improvement plans and most importantly to detect in time changes in the needs or tastes of its customers.

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**Keywords** Quality management • Sport center • Sport management • Service quality • Perceived quality • Satisfaction of customers • Scale of perception of sports organizations (EPOD)

## 5.1 Introduction

The existing literature highlights the need for companies or organizations to pay attention to quality and to incorporate it into their strategy. In the case of organizations providing services, the quality of the service offered is of particular relevance, as it has been proved empirically by numerous investigations that it impacts on obtaining significant benefits, such as improving competitiveness (Sureshchandar et al. 2002; Kim and Kim 1995), market share, and operational performance and, in particular, increasing customer satisfaction that leads to its loyalty (Calabuig et al. 2010) and, therefore, maintaining a long-term profitable relationship with the customer (Jones and Sasser 1995:89).

In this sense, research carried out in recent years in the field of service quality has been developed mainly from a marketing perspective and has been aimed, on the one hand, to define the concept of “quality of service” and to delimit its dimensions and, on the other hand, to develop an instrument which enables to measure it. Even today there is no consensus on the definition and measure, all of which is derived from the intangible nature of the service (Grönross 1984).

With regard to the definition, there are two different approaches that group the multitude of existing definitions and have led to the emergence of two schools of knowledge in which researchers are grouped: Nordic School (Grönroos 1982, 1983, 1988; Gummesson 1988; Lehtinen and Lehtinen 1991) and American School (Parasuraman et al. 1985, 1988). The first of the schools, influenced by the definition of quality that comes from the industrial field to define the concept, focuses on the product, considering the technical quality and functional quality of the product (“what” service does the customer get and “how” is the service provided) (Gummesson 1988; Lehtinen and Lehtinen 1991).

On the contrary, the North American School considering the special features of services such as intangibility, inseparability of production and consumption, etc. (Parasuraman et al. 1985) focus their attention to define the service quality not on the product but on the customer. Thus, the concept of “Perceived Quality of Service” by the customer emerges as a customer’s overall assessment (Parasuraman et al. 1988), which results from a comparison between expectations about the service to be received and perceptions of the performance of the organizations providing the service (Grönroos 1984; Parasuraman et al. 1985).

At present, this concept is the predominant one to define the quality in the area of services. This approach discards objective quality, an internal view of quality focused on the producer’s perspective (Vázquez et al. 1996), to focus on subjective quality or external vision of quality, which depends on customers’ opinions

(Zeithaml et al. 1990). What both schools agree on is the multidimensionality of the concept (dimensions the customer considers to evaluate the quality) and the need to identify them as a first step.

With respect to the second problem, there is no consensus on measuring quality, and the two previous schools mentioned have also led to the emergence of different conceptual models to measure it, resulting in different quality rating scales. In the Nordic School, the models are aimed at evaluating the effectiveness of the organization in order to satisfy clients' needs, and on the contrary, in the North American School, the process is evaluated through the perceptions that the clients have about the service (Grönross 1994; Parasuraman et al. 1985, Steenkamp 1990). There is no universal application model, the best known being the SERVQUAL model (Parasuraman et al. 1985, 1988) and the one developed by Cronin and Taylor (1992) based on the work of Parasuraman et al. (1985) and Carman (1990) denominated SERPERF. Numerous sector scales have currently been developed to measure quality in hotels, restaurants, etc.

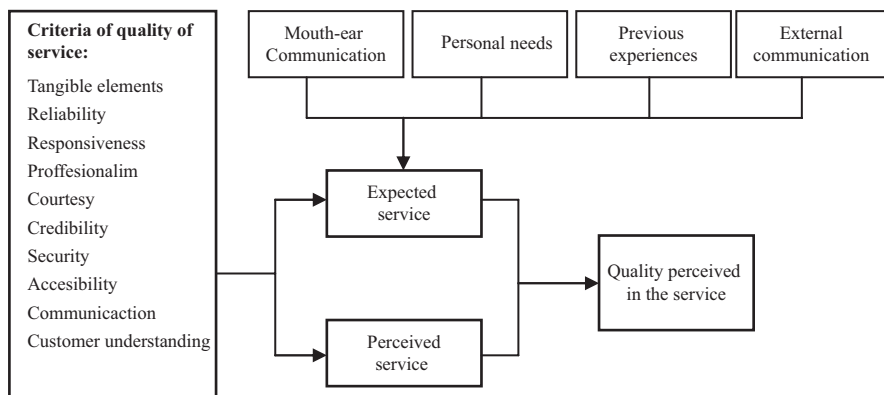
In this context, perceived service quality and scales to measure it, the objective of this chapter is to know the level of service quality perceived by users of a sports center (case study), as well as their level of satisfaction. It is also analyzed if perceived quality influences the satisfaction they experience with the service received. The methodology used is a descriptive analysis of a sample of 206 clients using the Perceptual Scale of Sports Organizations (EPOD) as a measurement instrument.

This chapter has been structured into four sections. After the introduction where the subject matter has been contextualized and the objective is presented, the second section refers to the measurement scale of the quality of service used. The third section presents the methodology used (target population, measurement questionnaire, and data analysis). The fourth section contains the results and in the last one, the conclusions obtained are presented.

## 5.2 Perceived Quality Measurement Scale

As we have already mentioned, the first research carried out with the objective of measuring service quality was developed by Parasuraman et al. (1985, 1988), from which the SERVQUAL model emerged as an instrument for measuring the perceived service quality. They defined this instrument as “a multiple scale, with a high level of reliability and validity that companies can use to better understand customer expectations and perceptions regarding a service” (Parasuraman et al. 1985). The conceptual model and the dimensions which they considered fundamental to measure service quality can be observed in the conceptual model of SERVQUAL represented by Zeithaml et al. (1993:26). In a later study, the list of ten dimensions was grouped into five (Fig. 5.1): tangible elements, reliability, responsiveness, security, and empathy (Zeithaml et al. 1993).

These dimensions are part of the questionnaire developed to measure service quality known as SERVQUAL, composed of 22 items in reference to the expecta-



Source: Zeithaml et al. (1993:26)

**Fig. 5.1** Conceptual framework of the SERVQUAL model (Source: Zeithaml et al. (1993:26))

tions and the perception of the service received (Parasuraman et al. 1988). Thus, this model constitutes the starting point of numerous investigations in the service sector in recent years. Subsequently, the SERVPERF (Service Performance) scale proposed by Cronin and Taylor (1992) emerges. They based it on the previous scale, and proposed a measurement model (using the same questionnaire) based solely on assessment of perceptions.

These models have been used in a number of studies in the sports service sector, in which the aim is to measure to what extent “the requirements, desires and expectations of customers-users of a sports service are satisfied” (Mundina and Calabuig 1999:80). However, most of the studies have been based on these scales, but have been modified to adapt them to the service studied due to SERVQUAL being considered a tool which is too generic. In this sense, the SERVQUAL scale has received different criticisms, among them the stability of the dimensions in different types of services (Carman 1990; Cronin and Taylor 1992; Teas 1994; Brady and Cronin 2001). One of the first applications of the SERVQUAL scale, making small modifications, was the one made by Wright et al. (1992) or Howat et al. (1993) that was based on this scale but the dimensions that are proposed are different: basic services, staff, facilities, and complementary services.

In this context, in the last years, based on the work of Parasuraman et al. (1993), different scales have been created, adapted to specific areas of sports services, such as the CERM-CSQ scale for evaluating the quality of service in sports centers created by Howat et al. (1996) or QUESC created by Kim and Kim (1995), EVENTQUAL (Mundina et al. 2005) that allows to measure the perceived quality of service of spectators of sporting events, among others.

In this research we have used the measurement scale of the Perception of Sports Organizations (EPOD) because it adapts to the service we wanted to measure and due to being an instrument that is defined by its creators as “simple and easy to apply to any organization and that brings together the acceptable psychometric

properties of a research instrument: validity and reliability” Nuviala et al. (2008:14). This scale was created to measure the perception of the service received by users of organizations that provide sports services and is composed of 28 items grouped into four dimensions: sports experts, material resources, activities, and image of the organization.

## 5.3 Methodology

### 5.3.1 Universe and Questionnaire

The target population of the study is the 1512 subscribers (people who sign a contract with the sports center that allows them to use its facilities and services in exchange for an economic amount) of the Sports Center where the research is done. The questionnaire that is used to fulfil the objective of the research is the multidimensional Scale of Perception of Sports Organizations (EPOD) (Nuviala et al. 2008) adapted to the sports center where the study is performed (30 items) and the scale to measure satisfaction is divided into three categories: satisfaction with the facilities (Wicker et al. 2010), satisfaction with the organization (Nuviala et al. 2008), and satisfaction with the development of the activity. Table 5.1 shows the sections of the questionnaire together with the measurement items.

The questionnaire was submitted physically to the clients, and the sample was constituted by 206 valid questionnaires, after discarding the incomplete ones, representing a response rate of 13.62% and margin of error of 6.35% for a confidence level of 95% ( $Z = 1.96$   $p = q = 5$ ).

### 5.3.2 Data Analysis

The Statistical Package SPSS 19.9 (Statistical Package for the Social Sciences) was used to perform data analysis. Two steps were followed in this analysis: (1) descriptive analysis (mean and standard deviation) of the measurement scales (quality of service and satisfaction); and (2) the measurement scales were validated taking into account the psychometric properties of reliability, validity, and unidimensionality (Anderson and Gerbing 1988).

In order to evaluate reliability, the internal consistency analysis was used: item-total Pearson correlation coefficients that should not exceed 0.3 according to Nunnally (1979), and Cronbach’s  $\alpha$  (1951) and Standardized Cronbach’s  $\alpha$  were estimated, checking that they exceed the minimum limit of 0.7. With this process, we delimit the number of items that measure the scales. In the case of unidimensionality of the scales, it was verified through an exploratory factorial analysis of main components with varimax rotation (Bagozzi and Baumgartner 1994), which allows to determine the percentage of variance explained and the factorial load of each

**Table 5.1** Structure of the questionnaire

|  |  |
|--|--|
| General data   | Age, sex, year in which the first payment was made, occupation, level of studies, days attending the sports center, schedule, activities performed in the center, reasons for going to this center |
| Scale quality of service                                   | He was asked about the perception of quality of service in different areas: Instructor (6 items), Facilities (5), Sports equipment (4), Activities (9), Communication (3), Staff (3)               |
| Scale to measure satisfaction                              | Facilities (5), Organization (3), Activities (4)   |
| Evaluate the overall quality level of the service provided |  |

Source: Authors' own data

\*The scale of measurement is a 5-point Likert scale (1 – totally disagree, 5 – totally agree)

indicator. Before this analysis, we verified that the data were adequate to perform the factorial analysis: correlation matrix analysis, Bartlett sphericity test (high  $\chi^2$  and sig. > 0.05), Kaiser-Meyer-Olkin measure (KMO) (0.7, median; >0.8, good and  $1 \geq KMO > 0.9$ , very good), and the sample adequacy measure is acceptable (unacceptable for values lower than 0.5; low values should be removed from the analysis).

## 5.4 Results

Before analyzing the results obtained, the most relevant characteristics of the sample are collected in Table 5.2.

In the first place, the validation of the scales considered was performed. In the case of the scale used to measure the quality of service perceived by the user, the reliability analysis shows that the scale is reliable, measures the concept in a consistent and stable manner, and is free from systematic and random errors (item-total correlation above 0.3 recommended in all items and Cronbach's  $\alpha > 0.7$ ). The analysis of the unidimensionality of the scales resulted in five dimensions that we denominate: instructor, facilities and sports equipment, activities, communication, and staff, which meant a percentage of variance explained of 70.28% and Cronbach's  $\alpha$  of 0.937 for the instructor factor, 0.932 for facilities and sports equipment, 0.905 for activities, 0.864 for communication, and for staff 0.827. Before the unidimensionality analysis, the data were proved to be adequate to perform the Exploratory Factor Analysis (EFA): correlations matrix (the number of correlations higher than 0.5 is considerable), Bartlett's Sphericity Test ( $\chi^2 = 5090.804$  and sig. = 0.000), the Kaiser-Meyer-Olkin (KMO) measure is 0.939 ( $1 \geq KMO > 0.9$ , very good), and the sample adequacy measure is acceptable (0.916–0.900).

With respect to the scale to measure the satisfaction experienced by the user, the same analyses were performed. The scale is reliable (item-total correlation greater

**Table 5.2** Sample characteristics

| <i>Gender</i>              | <i>Professional status</i>            | <i>Days a week that you go to the center</i> | <i>Reasons for going to the center (the top 3)</i> |
|----------------------------|---------------------------------------|--|--|
| Male 66.99%                | Student (32.04%)                      | 1–2 days                                     | Close to your place of residence or work (20.55%)  |
| Female 33.01%              | Self-employed (10.68%)                | 3 days                                       | Affordable price (14.72%)                          |
| <i>Age</i>                 | Business person (31.07%)              | (43.69%)                                     | Ease to use facilities (12.62%)                    |
| Young: 18–25 (35.4%)       | Unemployed (14.56%)                   | 5–7 days (26.7%)                             | Motivation for sportsEntertainment (40.29%)        |
| Young adult: 26–40 (42.2%) | Retired (10.68%)                      | <i>Schedule</i>                              | Physical training (31.07%)                         |
| Adult: 41–65 (22.3%)       | Others (0.97%)                        | In the morning                               |  |
| Senior: > 65 (0%)          | <i>Since when are you subscribed?</i> | (16.99%)                                     |  |
| <i>Studies</i>             | <1 year (25.73%)                      | In the afternoon                             |  |
| No education 2.43%         | Between 1 and 3 years (49.03%)        | (55.83%)                                     |  |
| Primary studies 3.40%      | Between 3 and 6 years (9.22%)         | Indistinct                                   |  |
| Secondary education 49.51% | Between 6 and 9 years (2.91%)         | (27.18%)                                     |  |
| Undergraduate 29.13%       | >10 years (13.11)                     |  |  |
| Others 15.53%              |                                       |  |  |

Source: Authors’ own data

than 0.3 in all cases, and Cronbach’s  $\alpha$  is 0.909) and is formed by three factors (uni-dimensionality analysis): satisfaction with facilities (Cronbach’s  $\alpha$  is 0.876), with the organization ( $\alpha = 0.885$ ), and with activities ( $\alpha = 0.876$ ). In this case, the EFA tests provided consistent results to perform the test: correlation matrix (the number of correlations greater than 0.5 is considerable), Bartlett’s Sphericity Test ( $\chi^2 = 1559.353$  and sig. = 0.000), the Kaiser-Meyer-Olkin (KMO) measure is 0.879 ( $0.9 > =KMO > 0.8$ , good), and the sample adequacy measure is acceptable (0.854–0.932).

The descriptive analysis performed provides us with information about the Quality of Service perceived by the user of the sports center, considering six dimensions: instructor, facilities, sports equipment, activities, communication, and staff. It is observed in Table 5.3, in which the results of two of the dimensions, instructor and facilities and sports equipment, are collected with an average of 4.41 and 4.39. In addition, all items have a high rating, higher than 4 in all cases. With regard to the “instructor” dimension, the best rated item corresponds to the perception that it sufficiently motivated the group and the classes are well planned (4.47). In the case of the dimension “sports facilities and equipment,” the highest rated item corresponds to the security of the center and the size of the locker rooms (4.50).

The analysis of the rest of the dimensions (Table 5.4) allows to observe that like the previous dimensions the average is higher than 4: 4.41 for activities, 4.38 for communication, and 4.55 for staff of the facilities. In the case of the rating of the “activities,” the best rated item corresponds to the perception by the user that with the activity he obtains the expected results (4.56) followed by the rating that the

**Table 5.3** Descriptive statistics: instructor and facilities and sport equipment dimensions

|   | Mean <sup>a</sup> | SD <sup>b</sup> |
|---|-------------------|-----------------|
| <i>Instructor</i>   | 4.41              | 0.63            |
| The instructor is punctual  | 4.33              | 0.74            |
| You are pleased with the attention given by the instructor                              | 4.37              | 0.75            |
| You believe that the instructor provides adequate attention to users from the first day | 4.36              | 0.72            |
| You believe that the instructor adapts the classes to the users' interests/needs        | 4.41              | 0.70            |
| You consider that the instructor motivates the group sufficiently                       | 4.47              | 0.70            |
| You perceive that the instructor has well-planned classes                               | 4.47              | 0.72            |
| <i>Facilities and material</i>  | 4.39              | 0.50            |
| The locker rooms are clean enough   | 4.41              | 0.75            |
| The locker rooms are large enough   | 4.50              | 0.68            |
| The facilities are clean enough   | 4.42              | 0.82            |
| The temperature is adequate   | 4.38              | 0.84            |
| The security of the facilities is adequate  | 4.50              | 0.76            |
| Sufficient material is available for classes  | 4.31              | 0.75            |
| The material is in optimal conditions for use   | 4.25              | 0.90            |
| The material is modern  | 4.30              | 0.93            |
| The safety of the facilities is adequate  | 4.48              | 0.80            |

Source: Authors' own data

<sup>a</sup>N = 206; Likert item measurement scale = 1 = least important/5 = most important

<sup>b</sup>SD standard deviation

**Table 5.4** Descriptive statistics: activities, communication, and staff dimensions

|  | Mean <sup>a</sup> | SD <sup>b</sup> |
|--|-------------------|-----------------|
| <i>Activities</i>  | 4.41              | 0.58            |
| The range of activities is updated   | 4.22              | 0.86            |
| The activity is enjoyable  | 4.39              | 0.76            |
| The tasks you do in the class are varied enough  | 4.43              | 0.71            |
| Schedules are convenient for users   | 4.48              | 0.71            |
| Activities end at the indicated time   | 4.50              | 0.66            |
| You are informed about the benefits of this activity                                     | 4.45              | 0.68            |
| You are satisfied with the quality/price ratio of the activity                           | 4.42              | 0.72            |
| With this activity I obtain the results that I expected                                  | 4.56              | 0.65            |
| <i>Communication</i>   | 4.38              | 0.66            |
| Facilities have some means to transmit your suggestions (suggestion box, bulletin board) | 4.35              | 0.75            |
| Information about the activities carried out in the center is adequate                   | 4.41              | 0.69            |
| The range of activities is permanently updated   | 4.38              | 0.79            |
| <i>Staff of the facilities</i>   | 4.55              | 0.49            |
| The service staff is there when it is needed and is always willing to help               | 4.46              | 0.65            |
| The treatment of the facility staff is pleasant  | 4.63              | 0.55            |
| There is a good relationship between the facility staff                                  | 4.60              | 0.58            |
| It has been easy to join the activity in which you participate                           | 4.56              | 0.65            |

Source: Authors' own data

<sup>a</sup>N = 206; Likert item measurement scale = 1 = least important/5 = most important

<sup>b</sup>SD standard deviation

activities finish in the time indicated (4.50). In the case of the “communication” dimension, the best rated item corresponds to the information provided by the center about the activities (4.41) and regarding “staff,” the best rated is pleasant treatment by the staff (4.60).

In summary, the overall service quality rating is 4.43, the “staff” dimension is the best rated with 4.55 followed closely by the rest of the dimensions: instructor and activities with an average of 4.41, facilities and sports equipment with an average of 4.39, and communication with 4.38. Finally, we must indicate that the users were asked to rate the quality of service provided by the Sports Center globally with an average of 4.48, and there is practically no difference with respect to the rating obtained by rating each dimension separately.

The descriptive analysis of the satisfaction scale shows that the three dimensions have been very well evaluated, showing users a satisfaction with the facilities, with the organization of activities and the activity very close to 4.5 on a 5-point Likert scale. The most rated items with an average of 4.52 and 4.51 are satisfaction with accessibility to facilities, satisfaction with the dimensions of the different areas of the facilities, and satisfaction with the number of weekly hours dedicated to the activity and duration of the sessions (Table 5.5).

Next, a customer segmentation process was carried out by taking into account the perceived quality and the satisfaction that the users experience, which allows to

**Table 5.5** Satisfaction: descriptive statistics and exploratory factor analysis

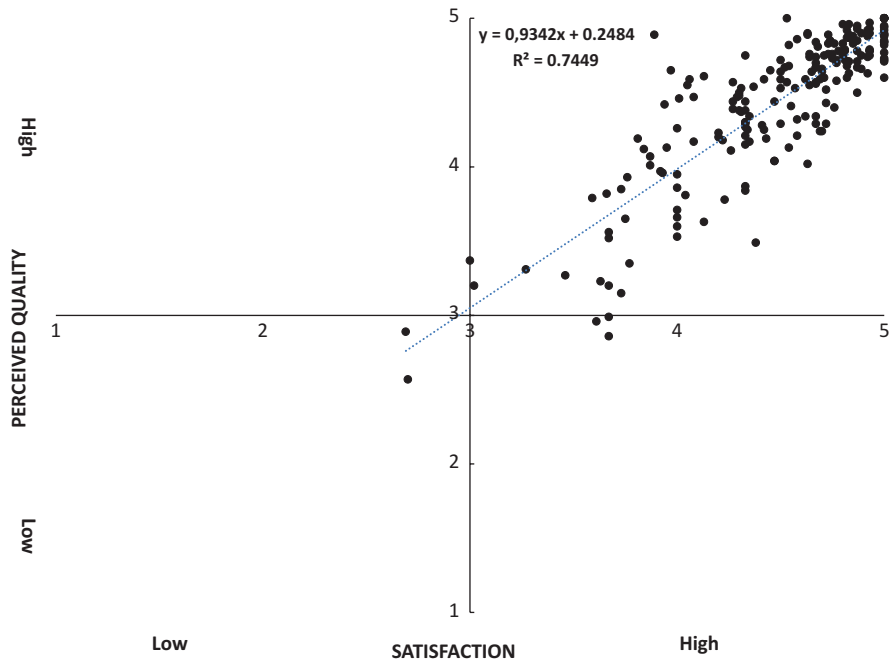
|   | Mean <sup>a</sup> | SD <sup>b</sup> |
|---|-------------------|-----------------|
| <i>Satisfaction with facilities</i>                     | 4.46              | 0.54            |
| Lighting  | 4.40              | 0.63            |
| Cleaning  | 4.45              | 0.76            |
| Dimensions of the different areas of the facilities     | 4.51              | 0.59            |
| Accessibility   | 4.52              | 0.58            |
| Ventilation   | 4.45              | 0.74            |
| <i>Satisfaction with the organization of activities</i> | 4.49              | 0.60            |
| Schedule in which they are developed                    | 4.47              | 0.68            |
| Taking advantage of the time in the activity            | 4.49              | 0.62            |
| Number of hours per week dedicated to the activity      | 4.51              | 0.69            |
| <i>Satisfaction with the activity</i>                   | 4.47              | 0.51            |
| The sessions are motivating                             | 4.47              | 0.57            |
| The intensity of the sessions is adequate               | 4.44              | 0.59            |
| The sports equipment used is suitable                   | 4.48              | 0.67            |
| The duration of the sessions is adequate                | 4.51              | 0.58            |

Source: Authors' own data

<sup>a</sup>N = 206; Likert item measurement scale = 1 = least important/5 = most important

<sup>b</sup>SD standard deviation





Source: Authors’ own data

**Graph 5.1** Customer segmentation portfolio. Correlation analysis (Source: Authors’ own data)

observe in which quadrant the clients are concentrated and at the same time to analyze if there is correlation between the quality perceived and satisfaction. We see that practically all the clients are in the quadrant that indicates a high satisfaction and a perceived high quality and the point cloud is concentrated around a line of least squares indicating visually the existence of positive linear correlation between both variables ( $R^2 = 0.7449$  indicates a good fit to the model). The intensity of the correlation can be analyzed by obtaining the coefficient of linear correlation of Pearson  $r$ , whose value is between  $-1$  and  $+1$ . The result is  $r = 0.863$ ,  $sig. = 0.000$  (correlation is significant at the 0.01 level), and indicates a strong positive correlation (between 0.5 and 1) (Graph 5.1).

Finally, we analyzed whether there were significant differences in perceived quality and satisfaction depending on two variables: gender (male, female) and age (we considered four groups: young, young adult, adult, and senior). In the first case, T-Student’s test was applied for two independent samples (allows to compare the mean of two groups of variables): perceived quality dependent variable (five dimensions) or satisfaction (three dimensions) and dichotomous independent variable (sex). In all cases the  $sig. > 0.05$ , so we accept the hypothesis of equality of means and we can state that there are no significant differences, so there is no association

between the dependent variable and the independent variable (sex with perceived quality and sex with the satisfaction).

We also performed the analysis taking into account the age. In this case, we used the analysis of the variance of a factor (ANOVA) to compare the means of more than two groups simultaneously, in this case, the significance (sig.) associated with Fisher-Snedecor's F statistic is  $>0.05$ , so we also accept the hypothesis of equality of means and conclude that there are no significant differences, therefore, there is no association between age and perceived quality or with satisfaction.

## 5.5 Conclusions

The results of this research carried out to measure the quality perceived by the users of a sports center and its level of satisfaction show that

1. The instrument of measurement used, the EPOD scale, presents a high degree of reliability and validity, with Cronbach's  $\alpha = 0.962$  for the global scale, very close to Cronbach's  $\alpha$  (0.919) obtained in the research by the creators of this scale, Nuviala et al. (2008), confirming the validity of this scale as an instrument for measuring the quality perceived by users in sports organizations. In this sense, the regular use of this scale by the managers of the sports center to which it has been applied is recommended, since it is thought like Nuviala et al. (2008: 10) that *"in order to increase the number of subscribers, organizations that offer sports services must improve the perception of the service provided."* Therefore, it is necessary for managers of sports centers to implement tools to measure the perceived quality of the service, with the aim of improving it, which will affect their level of satisfaction that leads, as already mentioned, to increasing user loyalty and maintaining the long-term relationship with the sports center.
2. The structure of the scale was studied, obtaining five dimensions, unlike the original scale proposed by Nuviala et al. (2008) that grouped the dimensions obtained in this research, staff, and communication into a single factor "image of the organization."
3. The perceived quality of the service is very high with an average of 4.43 on a 5-point Likert scale, with the staff dimension being the most rated (4.55) and the worst-rated communication (4.38). Although the values obtained are high, there is always room for improvement, even if it is small.
4. In this research, the level of user satisfaction was also measured, obtaining an average of 4.48 out of 5. A strong relationship was found between the perceived level of quality and satisfaction. Pearson's linear correlation coefficient  $r = 0.863$ , and sig. = 0.000 indicates a strong positive correlation.
5. Finally, it is considered that it is very important to establish these mechanisms, surveys to measure the perceived quality, which allow, on the one hand, to improve it if necessary and on the other, to detect changes in the tastes and expectations of the users, which constitute an element of judgment or fundamen-

tal reference (Parasuraman et al. 1985, 1988, 1991; Zeithaml et al. 1993). Thus, it will allow to adapt to users' requirements. Particular attention must be paid to the dimensions that the user uses to rate the quality of services (facilities and sports equipment, activities), especially those activities directly related to human resources, since staff attitudes and qualities have significant importance in the quality perceived by the user and therefore in his satisfaction, loyalty, and long-term relationship.

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# Chapter 6

## The Institutionalization of Sports Organizations: A Legitimacy Perspective

Francisco Díez-Martín, Alicia Blanco-González, Susana Díaz-Iglesias, and Miguel Prado-Román

**Abstract** Under the framework of institutional theory, the role of legitimacy on the soccer clubs activity is studied. For this reason, the actions that provide legitimacy and their relationship with the clubs results are analyzed. Through a review of the two most recognized Spanish soccer clubs, the results of this study suggest that cognitive and emotional types of legitimacy are essential for the institutionalization of soccer clubs, even more than other types of legitimacy such as pragmatic or regulative legitimacy. This study also suggests a relationship between economic performance and clubs legitimacy. These results broaden the organizations' current legitimacy process knowledge. These results also help sports entities managers to focus their strategic efforts on those legitimacy actions which are more relevant to their constituents.

**Keywords** Sport management • Organizational legitimacy • Legitimacy strategies • Soccer • Economic growth

### 6.1 Introduction

Soccer is the most popular sport worldwide. It is a phenomenon that moves millions of fans. A survey conducted in 2011 by the International Federation of Soccer Associations (FIFA) shows that about 265 million people play soccer regularly at professional, semiprofessional, or amateur level. This figure represents about 4% of the world population. Moreover, soccer is a spectacle that arises passions, moods, and rivalries (Dohmen 2008) of hundreds of millions of fans, even if they do not play it. But above all, it is a powerful industry that moves about 500,000

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million euros annually. It is a sport where strong professionalism is required when competing at the highest level. This has ended in the transformation of soccer clubs into companies subject to strong external controls, independent audits, and managed by professionals who are required to have a business plan that ensures a sports and business project better than the rival one's. In short, soccer is also a business that depends on its environment in order to get positive results (Díaz et al. 2012; Romo Pérez et al. 2010).

From 2008 to 2016, the macroeconomic situation in many European countries, particularly in Spain, has led to a financial crisis. Under this situation, many businesses closed down driven by lack of liquidity; there were a large number of redundancies and a significant consumption decline across the board. However, a part of the soccer sector seemed to be out of this severe economic situation. Spanish soccer clubs revenues grew at an average annual rate of 6.1%. Their expenses also grew, despite most clubs' precarious financial health. In addition, some main clubs board members were involved in financial fraud issues. In this context, paradoxical situations arose, like the one in 2012 when the Real Oviedo soccer club ("Segunda división B" of Spanish Liga) needed to raise 1.9 million euros in two weeks to prevent its dissolution. People from more than 60 different countries purchased IPO shares, reaching 1.5 million euros. Oviedo local government also went to the IPO. With respect to the remaining amount, the Spanish Treasury accepted a guarantee from the club. Thus, the club did not disappear and now is struggling to reach the First Division. Why do some companies have access to more financial resources (e.g., funding) than others? Why does a city local government finance some private entities (e.g., soccer club) versus others (e.g., furniture companies)? Why are some public administrations (e.g., Treasury) less prone to monitor rules compliance on certain companies?

These types of situations do not only happen in the soccer sector. They are also found in other economic contexts. Institutional theory is an excellent theoretical framework from which to improve our understanding of this fact, particularly in the soccer sports organizations sector (Washington and Patterson 2011). The principles of this theory suggest that when organizations become institutions, they have a greater chance of survival, despite the degree of effectiveness or efficiency that they achieve (DiMaggio and Powell 1983; Meyer and Rowan 1977). This happens because they have the society's support. Some soccer clubs move in this type of scenarios. Even when they develop an inefficient management (e.g., insolvency, high spending level and poor sports outcomes, management fraud), they continue having their fans' support. Institutions get society's support because they are organizations that play a role of public interest recognized by a social group (Oliver 1991).

There is a growing body of research in the sport-based institutional theory literature. However, few studies in this field refer to the institutionalization of sports organizations (Washington and Patterson 2011). Suchman (1995) suggests that the institutionalization and legitimization of organizations are synonymous concepts. Thus, institutionalization would be the process by which organizations make their actions to be perceived as desirable, correct, and appropriate by the society. To get

institutionalized, organizations must create an image of viability and legitimacy (Starr and MacMillan 1990). Numerous studies point out the importance of legitimacy as a requisite to the success of organizations (Baum and Oliver 1992; Díez-Martín et al. 2013a; Ruef and Scott 1998). This is due to the fact that it provides access to the necessary resources to survive and grow (Cruz-Suárez et al. 2014b; Deephouse and Suchman 2008).

The purpose of this research is to further investigate the role of legitimacy on the activity of soccer clubs. By doing this, it will be shown (a) what are the effects of the legitimacy of sports organizations and (b) what are the actions that increase the legitimacy of these institutions. This research contributes to the scientific advance in the management of sports organizations responding to the call for further elaboration of institutional theory in sport management by examining issues of organizational institutionalization (Washington and Patterson 2011). At the same time, the analysis of its results will allow to establish contributions on the management of sport organizations aimed to set actions in order to obtain specific organizational results.

To achieve the objectives, this article has been organized in four sections in addition to this introduction. The first section discusses the theoretical framework of the investigation. In this section, the concept of legitimacy, their typologies, and sources, as well as its importance for organizations, are described. Subsequently, the second section describes the research methodology. The third section shows the results of the analysis of the most renowned Spanish soccer clubs. The most decisive actions to obtain legitimacy, as well as the relationship with the business results, are detailed. Finally, the fourth section discusses the results and shows the scientific and managerial implications of the research. In addition, the limitations of the research are listed and future lines of research are proposed.

## 6.2 Conceptual Framework

The concept of legitimacy refers to the society's perception on the desirability of an organization *modus operandi* (Suchman 1995). It is a judgment based on people's perception. Thus, an organization is legitimated and desirable for a society when the organization is accepted by the society in which it operates as they share the same norms, beliefs, values, and principles. Legitimacy is a state that reflects the cultural alignment, policy support, or consistency with the relevant rules and laws (Scott 1995).

A core theme on the concept of legitimacy is to identify where the legitimacy of an organization comes from (Deephouse and Suchman 2008). The literature suggests that potential sources of legitimacy are not restricted to a particular group of people. Thus, one of the researches that establish a better understanding of the sources of legitimacy of an organization suggests that they are formed by the internal and external audience, who watches the organization and evaluates it (Martin Ruef and Scott 1998). In that sense, the source of legitimacy of a soccer club would

consist of all those groups that evaluate their performance. Thus, we can see that first-level clubs (e.g., Real Madrid C.F) acquire legitimacy of both international and local social groups, while other clubs in lower categories (e.g., Dos Hermanas C.F) hardly will acquire legitimacy of any international social group. Those organizations that have greater social acceptance (legitimacy) will have a more favorable situation than others with less legitimacy and, therefore, they will have greater opportunities to obtain better results (Díez-Martín et al. 2010, 2013a; Meyer and Rowan 1977; Zimmerman and Zeitz 2002).

Having legitimacy is essential for organizations. Legitimacy is a resource that promotes access to investors, customers, suppliers, distributors, authorities, and employees (Baum and Oliver 1992; Cruz-Suárez et al. 2014b. Díez-Martín et al. 2013b; Li et al. 2007; Meyer and Rowan 1977; Ruef and Scott 1998; Zimmerman and Zeitz 2002). There are multiple examples of soccer clubs that have benefited from great legitimacy. An example of this occurred in the First Division of the Spanish Soccer League in 1995. That year, the Real Club Celta de Vigo and Sevilla F.C. were announced an administrative dropping to the Third Division League for violating some competition rules and not having made a financial transfer on time. Within a few weeks, and under the pressure exerted by social groups of both clubs, the relegation was not executed. On the other hand, the same outcome did not occur to other soccer clubs in the same category, who held less legitimacy, such as Elche C.F., who was relegated in 2015 for debt default.

To ensure their survival, sports organizations should try to strengthen those actions that allow them to be institutionalized. Extensive research has identified strategic actions that enhance the legitimacy of organizations (Beddewela and Fairbrass 2015; Deephouse 1996; Kannan-Narasimhan 2014; Tingey-Holyoak 2014). Those actions would range from adjusting to social models commonly established (isomorphism) up to manipulating the environment in which they operate (Oliver 1991). Suchman (1995) grouped the legitimacy strategies into three main types: (a) strategies to gain legitimacy, (b) strategies to maintain legitimacy, and (c) strategies to recover lost legitimacy. From this approach, it is assumed that organizations can take proactive actions to acquire, retain, or even repair their legitimacy, for example, changing the business model under the new social beliefs, using advertising to make pressure and change regulations, or monitoring and assimilating the changing environment.

As well as there are multiple ways to gain legitimacy, there also are multiple types of legitimacy (see Bitektine 2011). However, in most cases, researches use three or four types/typologies. The origin of those most common types is found in the works of Scott (1995) and Suchman (1995). Both refer to three types/typologies of legitimacy, although they do not completely converge. The first considers the existence of cognitive, regulative, and normative legitimacy types. The second suggests a typology consisting on a pragmatic, moral, and cognitive legitimacy. Other authors have also proposed some divergent typology (Ruef and Scott 1998; Treviño et al. 2014; Zimmerman and Zeitz 2002). The literature has not yet reached a consensus on this jungle of typologies.

The legitimacy of an organization may consist of one or more of these types. An organization can have much legitimacy because it acts in the best possible way at the technical and management level, using the best techniques and procedures



(cognitive legitimacy). It can also gain moral legitimacy acting according to socially responsible principles that are above particular interests (moral legitimacy), for example, when one soccer team visits a children hospital. The pragmatic legitimacy refers to achieving objectives (e.g., sporting success). While compliance with regulatory regulations gives normative legitimacy (e.g., keep up with payments to the Treasury or the Social Security and not incurring in crime of fraud or corruption). In addition, when an entity is able to represent an ideal with which its supports are identified and emotionally connected, it gets emotional legitimacy.

### 6.3 Sample and Methodology

It was decided to analyze the role of legitimacy on the activity of the two most important soccer clubs of Spain (Real Madrid C.F. and F.C. Barcelona). The objective is to obtain a first approach of the effect of legitimacy of soccer teams on their results and actions undertaken to manage their legitimacy.

#### 6.3.1 *Status of Real Madrid C.F.*

Real Madrid C.F. is one of the most honored and recognized world entities, being awarded at national and international soccer level by FIFA as the Best Club of the twentieth century, as well as the Best European Club of the twentieth century by the International Federation of Soccer History & Statistics (IFFHS). It is the most popular club in Spain, relevance that extends outside of Spain being one of the most acclaimed worldwide. Its value is estimated at slightly less than 2600 million euros and revenues are more than 500 million euros per season, getting in 2012–2013 an estimated 520.9 million euros (Ministry of Education, Culture and Sport 2013).

In 2014, Forbes magazine placed Real Madrid for the second consecutive year as the most valuable sports institution in the world, increasing its value to 3.440 million dollars. As this publication says on its website, the white club maintains this top spot thanks to the higher revenues in the world of sports with 675 million dollars and an operating profit of 172 million in the 2012–13 season.

Sources of income and balance sheets are only two of the criteria that Forbes magazine takes into account when elaborating its list. Real Madrid is the Europe's highest-grossing club due to the capacity of its stadium, 189 million dollars. It has 23 national and international sponsors that generate revenue, advertising contracts of the players and the club, with media coverage in more than 180 countries, and also there are 130 licensees of the products of Real Madrid throughout the world. With regard to the financial situation, equity presented by the entity rises to 405 million dollars. In addition, the Real Madrid club ranks as the most solvent of the world soccer clubs thanks to a net debt/EBITDA of 0.6 and a net/equity debt of 0.3.

### 6.3.2 Status of F.C. Barcelona

The main competitor of Real Madrid C.F is F.C. Barcelona (Barça), which can be said to be one of the most popular teams. According to a study conducted in May 2007 by the Sociological Center of Research (CIS), F.C. Barcelona is the second soccer club with more supporters in Spain with a quote of 25.7% in Spain. According to IFFHS statistics, F.C. Barcelona is the best European and worldwide soccer team in the first decade of the twenty-first century.

However, having had 450 million euros of income 2011-12, the main financial problem of the club is its debt of 575 million euros. The equity of F.C. Barcelona is -68.7 million euros according to the financial economic study of the First Division soccer clubs conducted by Professor Josep María Gay. The figure has been confirmed by the economic vice president of Barça, Xavier Faus, who blames the club's financial situation to the previous boarding team managed by Joan Laporta.

### 6.3.3 Methodology

The measurement of legitimacy is one of the major problems that researchers in this field face (see Díez-Martín et al. 2010), among other reasons due to the large number of existing legitimacy typologies (see Bitektine 2011) and because the effect produced by each type of typology on each organization is different (Cruz-Suárez et al. 2014a). Recently, in the sport management area, a framework has been developed to capture perceptions of organizational legitimacy (Lock et al. 2015). However, most empirical analyses of legitimacy have developed their own ad hoc research instruments. There have been used content analysis (Bansal and Clelland 2004; Deephouse 1996; Pollack et al. 2012), surveys (Chung et al. 2015; Díez-Martín et al. 2013a), interviews (Low and Johnston 2008; Rutherford and Buller 2007), business cases (Bianchi and Ostale 2006; Drori and Honig 2013), and analysis of secondary data (Blanco-González et al. 2015; Cruz-Suárez et al. 2015; Deephouse and Carter 2005; Díez-Martín et al. 2016; Stenholm et al. 2013).

This research is based on press news to measure the legitimacy of the two soccer clubs. Dowling and Pfeffer (1975) mention that the media informs about the comments and criticism that not legitimated organizations receive, reflecting society's values. This way of assessing the legitimacy has been previously used (e.g., Deephouse 1996; Bansal and Clelland 2004). To follow this procedure, nationwide public opinion representative media have to be chosen. At this point, we could take *Marca*, the sports newspaper with more circulation nationwide, or *Sport*, the one with more circulation in Catalunya. However, in order to escape from possible trends or affinity with either team, we have selected specifically the newspaper *El Mundo*, the second most widely general information newspaper read in Spain, with 1,107,000 readers, according to data from General Media Study (EGM).

The analysis of the articles was performed through *El Mundo's* website database, using its search engine that includes all the historic news of the newspaper. The searching criteria were the name of each club, filtered by relevance degree (80%), section "sports," and subsection "soccer/soccer." A total of 649 news related to Real Madrid C.F. were found in 2012 against 267 related to F.C. Barcelona, and a total of 629 in 2013 against 247.

Each piece of news was encoded using the same methodology as Bansal and Clelland (2004). That is, the codification was done according to their impact on the legitimacy of the company (0 = neutral, -1 = negative, and 1 = positive). In addition, sample checking was carried out by three external researchers that took a random sample of 60 pieces of news. The three researchers agreed in 56 of the 60 cases analyzed (93.33%), suggesting a high degree of reliability.

Following Deephouse (1996), we have calculated Janis-Fadner legitimacy coefficient.

$$\begin{aligned} \text{Janis Fadner coefficient} = \\ (e^2 - ec) / t^2 \quad \text{if } e > c \\ (ec - c^2) / t^2 \quad \text{if } c > e \\ 0 \quad \text{if } e = c \end{aligned}$$

where  $e$  is the annual number of positive legitimacy news,  $c$  is the annual number of negative legitimacy news, and  $t$  is  $e + c$ .

On the other hand, the analysis of the results of soccer teams was carried out using Bosshardt et al. (2013) report. This report was conducted by the Sport Business Group at Deloitte and represents a comprehensive analysis of the results of both entities.

## 6.4 Results

### 6.4.1 Comparative Analysis of Results

First, the income and its sources of income of the two Spanish clubs with greater capacity to generate revenues are analyzed. Total revenues data have been extracted from the financial reports of each company or from other direct sources dated end of 2011/2012 season published in Deloitte's Soccer Money League 2013 report. Revenue excludes transfer rates of players, VAT, and other sales-related taxes.

Real Madrid is the first club in history to surpass € 500 million annual revenue (€ 512 million in 2012), increasing by 7% in comparison to previous year (+ € 33.1 million). After a season in which Real Madrid won the Spanish League with a record of points and having reached Champion League semifinal but eliminated by FC Bayern, the club increased its ticket's incomes by € 2.6 million (+2%) reaching € 126.2 million. The club has announced the Bernabeu project that will increase the stadium's capacity

and the revenues related to its operation. Real Madrid broadcasting rights are bonded to their contract with Mediapro till 2014/2015 season, including the Spanish League, the UEFA Champions League, and friendly games. From broadcasting rights, their incomes have reached € 199.2 million, an absolute record that represents 9% more than the previous year (€ 15.7 million). Real Madrid C.F. has played friendly games in the United States, China, Kuwait, and several European countries. Revenues from commercial activities have increased by € 14.8 million (+9%) up to € 187.2 million. The Real Madrid C.F. has reached sponsorship agreements with Emirates Airlines and BBVA group. In addition, in 2011, it has extended its agreement with Adidas until 2019/2020. Taking into account that their contract with BWIN expires this season, the increasing value of this type of sponsorship, and the stadium's expansion project, the club is likely to remain the world's No. 1 in revenue for the next few years.

At the same time, F.C. Barcelona's sport season ended winning the Super Cup and the Club World Cup and its revenue increased by 7% (€ +32.3 million) up to € 483 million. This growth is almost entirely due to commercial operations (€ +30.6 million/+20%) in 2011-12 and € +64.7 million/+53% in the 2010-11 and 2011-12 seasons reaching a total of € 186.9 million. Most of this increase is due to the agreement with Qatar Sports Investments that began in 2011/12 season and reports to the club about 30 million euros per year, the highest amount until the Manchester United Soccer Club signed its agreement with Chevrolet in 2014/2015 season. In addition, Qatar Airways will replace Qatar Foundation on the club T-shirts' banner. Subscribers and box office incomes increased by € 5.6 million, representing only the fourth position in the international ranking for this concept. Broadcasting rights decreased by 2% (€ 3.9 million) because UEFA Champions League incomes dropped down from € 51 million for winning the Champions League to € 40.6 million after falling in the semifinals the year after. Mediapro partly mitigated this decrease by paying more for their participation in the Spanish League.

### 6.4.2 *Analysis of the Legitimacy*

Table 6.1 shows the results of legitimacy of the two soccer clubs during 2012 and 2013. Table 6.2 shows the level of legitimacy and the variation obtained for each club between 2012 and 2013. This latest indicator is the one that has been used to develop a comparative analysis between organizations. This is an indicator that homogenizes results between companies with disparate resources.

The results show that Real Madrid C.F. has had a greater presence in the media during this period with a total of 649 news in 2012 versus 267 of F.C. Barcelona and a total of 629 in 2013 versus 247 of F.C. Barcelona. The results indicate that the legitimacy of Real Madrid in 2012 was lower than that of F.C. Barcelona. However, in the subsequent year this situation changed, with the Real Madrid C.F. gaining greater legitimacy.

In 2012, Real Madrid C.F. got less legitimacy than its competitor F.C. Barcelona. During the 2012 season, Real Madrid was the Spanish League champion, winning

**Table 6.1** Identification of values of legitimacy

| Team             | Season | Positives | Neutrals | Negatives |
|------------------|--------|-----------|----------|-----------|
| Real Madrid C.F. | 2012   | 76        | 22       | 52        |
|                  | 2013   | 95        | 16       | 39        |
| F.C. Barcelona   | 2012   | 92        | 31       | 27        |
|                  | 2013   | 84        | 25       | 41        |

**Table 6.2** Results of legitimacy

| Team             | 2012 | 2013 | Variation |
|------------------|------|------|-----------|
| Real Madrid C.F. | 24   | 56   | +32       |
| F.C. Barcelona   | 65   | 43   | -22       |

the “League of Records.” This fact increased their pragmatic legitimacy mainly due to sport achievements. However, the legitimacy gained by the club was not too great. The key that seems to explain the low results in legitimacy of the team is the behavior of Jose Mourinho. Mourinho was the coach of the Real Madrid C.F. in 2012. He is one of the characters in the world of soccer with more pull among the media because of his charisma and because he is the leading role of many news. Under the guidance of that coach, the club experienced a significant loss of sympathy throughout Spain, reducing their emotional and moral legitimacy. In addition, much of the supporters understood that the team’s playing style was boring, reducing their cognitive legitimacy. This type of legitimacy was also reduced by the continuous arguments between the team captains. The supporters were also torn due to the substitution of one of their starring players (Iker Casillas) reducing the moral legitimacy of the team.

The situation for F.C. Barcelona in 2012 was very different. Despite losing the Spanish League against Real Madrid C.F. (decrease of pragmatic legitimacy), the public image of the club, represented by the values of the Masía (moral legitimacy) and good job of their coach Pep Guardiola (cognitive legitimacy), made F.C. Barcelona to gain more and more followers. In addition, the club increased cognitive legitimacy because it showed a more attractive playing style. Pragmatic legitimacy was also increased by winning individual titles like the 2012 Golden Ball awarded to Leo Messi.

However, in 2013, the situation of the previous year was reversed, with Real Madrid C.F. having more legitimacy. Some of the facts that we can highlight are the agreed resignation of Jose Mourinho that led to a period of calm and cessation of arguments from some press sectors against Real Madrid (cognitive legitimacy). In addition, during the transfer period of that year, Real Madrid hired a well-known international player (Gareth Bale), which increased their emotional and cognitive legitimacy.

The lowest legitimacy obtained by F.C. Barcelona is justified by the reduction of cognitive legitimacy due to the move of the team coach, Pep Guardiola. This was

the beginning of a turbulent period in which the team had several coaches including Tito Vilanova and Jordi Roura, which impacted its cognitive legitimacy. Despite the reduced legitimacy during this period, the difference between both teams was small mainly due to sport success (pragmatic legitimacy) as F.C. Barcelona won the Spanish League.

## 6.5 Discussion, Conclusion, and Implications

Over the years, the study of organization's legitimacy has become one of the biggest areas of research in the field of business management (Haveman and David 2008; Überbacher 2014). However, there are still significant gaps to solve on key aspects of the process of legitimation of organizations, particularly in the field of sport management, where it is still necessary to examine some issues of organizational institutionalization as well as the actions that lead to the institutionalization of organizations (Washington and Patterson 2011).

This research has gone in depth into the role of legitimacy on the activity of soccer clubs. For this, the legitimacy of the two soccer teams of Spain with greater recognition (Real Madrid C.F. and F.C. Barcelona) has been taken into account, as well as its main business results. The results suggest that sports organization's legitimacy leads to better results. However, due to the innumerable list of variables that affect a club on their final income, it cannot be said that legitimacy has influenced completely in achieving such income. However, it is noteworthy that economic growth and increased legitimacy match in the case of Real Madrid C.F., while a negative variation of legitimacy and lower revenues occur in the case of F.C. Barcelona. This result is in line with other studies that conclude that legitimacy favors access to resources and the survival of businesses (Waugh et al. 2014; Young et al. 2014), although complex economic situations are involved. Those organizations having higher rates of legitimacy will have a more favorable situation than those that are not so socially accepted and will have greater opportunities to obtain higher profits and endure successfully over time (Zimmerman and Zeitz 2002).

At the same time, the results also suggest some key actions that could be taken to obtain legitimacy. In addition to obtaining the proposed objectives, it has been shown that having a management (coach) of prestige is essential to gain legitimacy. Even when sportive goals are not achieved, this prestigious figure becomes a buffer against the loss of legitimacy. Previous researches suggest that any effort that the organization makes fundamentally depends on the capabilities, feelings, training, and CEO mindset (Díez-de-Castro et al. 2015). The results also suggest the need to maintain a semblance of cohesive club, where internal problems do not show to the outside. Transmitting an ideal with which followers identify and emotionally link is also important to gain legitimacy. It is noted that despite not obtaining the proposed objectives, it is possible to achieve and maintain legitimacy if the organization has acted in accordance with the ideals, culture, and way of doing things in the club. On the contrary, obtaining sporting success by poor and undesirable actions does not

significantly increase legitimacy. This allows us to consider that cognitive and emotional legitimacy are key factors for soccer clubs even above other types of legitimacy as pragmatic or regulative. Previous research has suggested this circumstance (Scott 2008), arguing that each type of legitimacy is based on different dynamics of behavior (Bitektine 2011; Díez-Martín et al. 2013a; Suchman 1995).

In this research, some managerial implications emerge. Fundamentally, soccer clubs should start managing their own legitimacy, because even in situations of economic crisis, it favors the access to society and obtaining economic results. To manage the legitimacy, clubs should spend time developing understanding of the key dimensions that make them relevant to constituents (Lock et al. 2013). This is essential if the organization wants to be perceived as legitimate. In the case of soccer clubs, cognitive and emotional legitimacy are essential to maintain the support of society. In short, managers should not remain as passive elements in the process of legitimation but must become drivers of this process (Oliver 1991). One way to guide this process would be to consider legitimacy as a strategic objective. And achieving this goal could develop strategies to gain legitimacy (Suchman 1995).

Finally, this research has some limitations that suggest areas for future research. First of all, it presents the limitations of a business case. The results shown cannot be considered significant. Thus, the results should be interpreted with caution and taken as approximations until the strength of this model is confirmed with other empirical studies. An extension of the sample is needed in order to validate the established propositions. Apply statistical methodologies in order to confirm the results with greater validity and reliability. It would also be advisable to measure legitimacy through both external and internal sources, for example, taking into account the perceptions of employees and supporters of the clubs. Thus, more valid and reliable results could be obtained. This could be used to analyze the similarities that may appear between the sources of legitimacy. In previous investigations, there have been observed differences between the perceptions of different sources of legitimacy (Cruz-Suárez et al. 2014a).

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# Chapter 7

## Sport and Doping: A Theoretical Approach

Domenico Marino and Pietro Stilo

**Abstract** Doping is not a modern phenomenon. The practice of using illegal substances to improve physical performance beyond one's physical capabilities and thus beat challengers during sports events goes back to very ancient times. Already during the first Olympic Games, athletes used stimulating substances to become more competitive. Greek and Roman wrestlers ingested special mushrooms or various types of meat, convinced that this would give them an edge in wrestling matches. However, today in some sports the scope of this phenomenon has become worrying, in view of the need not only to safeguard fair competition, but also and especially to protect athletes' health. The aim of this study is to explore and identify the dynamics of doping within sports disciplines and the mechanisms that cause its growth. We shall also attempt to understand whether there are substantial differences in the demand for doping among the various sports disciplines. The distinctive feature of this study is the interpretation of some stylized doping facts through ecological-biological models and evolutionary games.

**Keywords** Sport and economy • Sport and development • Games strategy • Doping • Olympic sports

### 7.1 Sport and Doping: Some Stylized Facts

Since the earliest times, sport has fascinated and excited people across the board: during a football or basketball game, a cricket match or a swimming competition, social and cultural differences, gender or any other differences are set aside, what is foremost is passion for the competition, the challenge and the result. Humankind has engaged in competitive sports since ancient times; the birth of the Olympic Games is conventionally dated back to 776 BC, when we find the earliest records of organized sports activities.

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Today, the unequal distribution of sports disciplines in the various countries and/or geographical areas, where they enjoy different levels of popularity, also offers some reflection of cultural differences. But sport is not only a competition, resounding defeats or heart-warming victories; sport is also a tool for promoting mutual dialogue and interaction, peace building, and understanding among peoples. Legend has it that during the Olympic Games even wars were suspended. In modern times, however, the opposite is the case that the Games have been suspended because of war, for example, during the two world wars, when the Olympics were canceled. So sport can be a powerful element for bringing peoples and communities together. However, the growing interest it has attracted over the years includes significant economic interests, which at times have led athletes and their managers to engage in illegal activities to obtain the desired results.

As is well known to scholars of global geopolitical changes, after the fall of the Berlin Wall and the end of the Eastern and Western blocs, the world has changed radically. New players have emerged on the international scene, new challenges are facing policy-makers, and new priorities have appeared on the governments' agendas. All these novelties, often been labeled as globalization-induced changes, have among other things been a vehicle for the expansion of phenomena that previously were mainly local. For example, criminal organizations have expanded the scope of their activities beyond their former borders. The deregulation of markets, the gradual breaking down of borders, new ICT technologies, the consequent dematerialization of money transfers, and the growing phenomenon of mass migration have all helped criminal organizations to expand their penetration into the legal economy.

The field of sport too, as shown by many criminal investigations and court cases, has been affected by the penetration of organized crime. There are several reasons for this, including money laundering; the creation of social consensus, which these organizations by their very nature need; and even the sale of illegal substances.

The practice of using illegal substances to improve physical performance beyond one's physical capabilities and thus beat challengers during sports events goes back to very ancient times. Already during the first Olympic Games, athletes used stimulating substances to become more competitive. Greek and Roman wrestlers ingested special mushrooms or various types of meat, convinced that this would give them an edge in wrestling matches. Sailors too used various mixtures to better face up to stormy seas, and indeed it is from the Dutch word for these mixtures – "doop" – that the words "dope" and "doping" are thought to have derived. German soldiers too, especially in the Air Force, driven by their officers, used doping substances to overcome their fear and become more aggressive in combat. However, differently from the earlier use of stimulant substances found in nature, these were processed chemical substances, which started to be used from the early nineteenth century. Already in the early years of the twentieth century we find the first disqualifications and the first deaths due to illegal substances, ingested to obtain better results illegally. Some athletes indeed began to follow the motto "Better dead than second!"

After the fall of the Berlin Wall, the Western world discovered a highly worrying reality: for decades the athletes of the former Soviet bloc, mainly Russia but also East Germany, had induced or rather forced their athletes, for political reasons, to

accept “state-sponsored doping.” In other words, those athletes were doped to be winners in their disciplines, in order to lend prestige to their countries for propaganda reasons, to strengthen their citizens’ pride and unity in the face of their western opponents.

This overview helps us to understand the situation found by some athletes when entering the world of sport. Numerous cases have made global headlines; think of sprinter Ben Johnson found with nandrolone in his body and Regina Jacobs, Dwain Chambers, and Kevin Toth found positive for tetrahydrogestrinone (THG), a substance that is short-lived in the body and hence can be difficult to detect unless the anti-doping test is performed immediately after the sports event. In the late 1980s, the coach of the Rome football team, Zdenek Zeman, during an interview made a very strong statement which caused a true storm and led to an inquiry on the part of CONI (the Italian National Olympics Committee), and also by the judicial authority. Basically, his accusation was that in the world of Italian football, too many drugs were circulating; this also led to the resignation of CONI Chairman Pescante.

Eliminating the practice of doping is not only a cultural, but also a legal, imperative. Indeed several laws in Italy and at international level aim at fighting this phenomenon. International legal instruments include the Strasbourg Anti-doping Convention – which regulates ethical principles and educational values – and the list of prohibited substances, practices, and methods produced by WADA (the World Anti-Doping Agency) established in 1999. WADA achieved an important step forward in the fight against doping with issue of the first WADA Anti-doping Code, approved by representatives of some 80 countries during the Copenhagen Conference (in force since 1 January 2004). It was replaced by a new Code approved on 17 November 2007, and which entered into force on 1 January 2009. This Code set out the rules and principles of anti-doping, which must be followed by: WADA, the International Olympic Committee, International and National Sports Federations. It also establishes uniform standard international guidelines which all laboratories must follow. Finally, the Code also introduced a new definition of doping, which was much more comprehensive than the previous one.

In Italy, the main legal instrument is Law No 376/2000, which also regulates the use of some medicinal drugs which are considered to be doping substances and are therefore prohibited. The packaging of these medicines bears the word “doping” inside a red crossed circle indicating the presence of forbidden doping substances. This law furthermore has also set up a committee for surveillance and control of doping and the protection of health in sports activities. But which are the forbidden substances? They include the following categories: hormones, diuretics, masking agents, beta-2 agonists, and anti-estrogenic substances, but above all anabolic agents, stimulants, narcotics, cannabinoids, and glucocorticoids. The range extends to include autologous blood transfusion and blood substitutes.

Besides the use of drugs and/or performance-enhancing substances, another current trend in sport is to rely on technology to improve the athletes’ performance. This involves the support of aerodynamics experts, engineers, and specialists in all sectors, able to offer assistance not detectable through anti-doping tests. Carbon-fiber prosthetics, secret motors hidden in bike frames, high-tech swimwear, and

high-performance fabrics with silver and titanium nanoparticles offer particular qualities and exceptional advantages for athletes. These practices are known as technology doping.

As to a classification of the countries and sports where doping is present, figures are provided on the website of the “Movement for credible cycling” (MPCC), which defines its mission as follows: “The purpose of the MPCC association is to defend the idea of a clean cycling based on notions of transparency, responsibility and mobilization of its members.” Thus this association is committed to the defense of sport and its protection from the negative impact of doping. The doping figures published on their website reveal that in terms of country ranking for doping, Russia holds the number one position, while the ranking by disciplines shows among the most affected disciplines weightlifting, baseball, and football.

According to the McLaren Report published by WADA, Russia heads the list of countries with doped athletes. The scandal involving Russia, strongly highlighted by the media in the period before the Rio Olympics, might have diverted attention from other facts, such as the fact that several American athletes are also involved. When the MLB (Major League Baseball) strengthened its anti-doping policy by introducing a system of penalties, it emerged that baseball was the sport most deeply involved, and that the United States and the Dominican Republic were the two countries most affected as to this discipline.

Based on this analysis Russia might improve its position and go down in the doping ranking once McLaren’s final report is issued. The report shows that the three disciplines most affected are weightlifting, athletics, and canoe. These disciplines are also practiced at very high levels by Russian athletes. Track-and-field athletics is the sport showing a growth in the number of positive tests in 2015. A reduction in cases was recorded in cycling, in both 2014 and 2015.

The report examines all positive cases in 2015. Top of the list we find track-and-field athletics which in 2014 showed no less than 95 positive cases and which in 2015 year dropped to 49. Another sport accused of having a high number of positive tests is weightlifting, recorded just (so to speak) 34 cases, while baseball recorded 26 cases. As to the ranking by country, Russia stands at number one (with 30 cases), as stated earlier, followed by the USA and the UK (18), Bulgaria, and the Dominican Republic (10). Italy had 6 positive tests.

## 7.2 The Determinants of Doping

The figures reported above show a growing spread of doping in the various sports disciplines. Two main factors can be identified:

- A. One concerns the psychological and motivational determinants of doping, which clearly differ among athletes and are randomly spread among the different disciplines.
- B. The other is the advantages offered by doping in terms of better performance.

As to the psychological and motivational determinants of doping, the following types can be identified:

1. Ego-orientation (wish to stand out at all costs and with every means)
2. High degree of dependence on others' opinion (weak personality)
3. Unprofessional behavior in non-sports situations
4. Narcissistic cult of one's image
5. Dependence on a "winner culture"
6. Low level of ethical values

Since there is no a priori reason why persons with an inbuilt propensity toward doping should be more concentrated in a specific discipline, we can assume that persons with a stronger propensity for doping will be distributed in an entirely casual manner across sports disciplines.

What determines the greater or lesser concentration of athletes likely to engage in doping in a given discipline are the aspects covered by point B, i.e., the different levels of performance enhancement that can be obtained through doping. To explore this aspect, we shall use an evolutionary model.

The following table provides an overview of the different incidence of doping among sports disciplines:

Table 7.1 provides the figures on tests and positive tests by sports discipline. The figures cover about 80% of total anti-doping tests. As shown by the table,

**Table 7.1** % of positive tests on total test for sports specialties

| Sports specialties | No. of tests | No. of positive tests | % positive tests/total tests |
|--------------------|--------------|-----------------------|------------------------------|
| Aquatics           | 12,120       | 57                    | 0.470297                     |
| Archery            | 898          | 7                     | 0.77951                      |
| Athletics          | 25,830       | 261                   | 1.010453                     |
| Badminton          | 1139         | 3                     | 0.263389                     |
| Basketball         | 5439         | 37                    | 0.680272                     |
| Boxing             | 4258         | 55                    | 1.291686                     |
| Canoe / Kayak      | 4485         | 23                    | 0.512821                     |
| Cycling            | 22,471       | 221                   | 0.98349                      |
| Equestrian         | 619          | 11                    | 1.77706                      |
| Fencing            | 1609         | 4                     | 0.248602                     |
| Field Hockey       | 1641         | 8                     | 0.487508                     |
| Football           | 31,242       | 144                   | 0.460918                     |
| Golf               | 507          | 8                     | 1.577909                     |
| Gymnastics         | 2355         | 10                    | 0.424628                     |
| Handball           | 4026         | 26                    | 0.645802                     |
| Judo               | 4453         | 40                    | 0.898271                     |
| Modern Pentathlon  | 665          | 4                     | 0.601504                     |
| Rowing             | 4699         | 24                    | 0.510747                     |
| Rugby Union        | 6961         | 57                    | 0.818848                     |
| Sailing            | 795          | 2                     | 0.251572                     |
| Shooting           | 2616         | 23                    | 0.879205                     |

the positives, albeit on the whole low, display a strong variability within the range, and give us an approximate picture of the differences in the use of doping in the different sports.

### 7.3 A Theoretical Interpretation Model for the Doping Diffusion

To explain the economic mechanism underlying doping, we shall start by identifying each match as an ecological system in which two species compete for the same resource. In our model, a match/race is simply a competition between two species for a resource, under the condition that the principle of competitive exclusion is present.

$$\frac{dx}{dt} = [r_x - s_x(ax + by)]x \quad (7.1a)$$

$$\frac{dy}{dt} = [r_y - s_y(ax + by)]y \quad (7.1b)$$

In particular, in the biological selection mechanism we can identify two parameters:

- (a) Individual performance
- (b) Competitive capacity

By applying the Lotka-Volterra model of interspecific competition for one resource, we can write

(1) where  $x$  and  $y$  are the two species and  $r$  and  $s$  are, respectively, the individual performance and competitive capacity (seen as lower calorie demand) of the two species:

If we define the ratio of  $r$  to  $s$  as efficiency, one species will prevail if the ratio

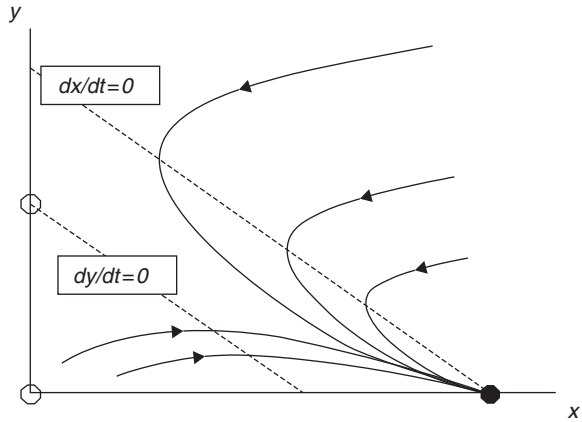
$$r_x / s_x > r_y / s_y \quad (7.2)$$

Population 1 will win the competition if  $r_x/s_x > r_y/s_y$ .

The principle of competitive exclusion that applies when several species are competing for the same limiting resource means that only one of the species, the one that is more efficient in using the resource, will persist in the long term, excluding all the others. In other words, in the case of sport this means that the best athletes will win.

In this context, doping is simply the  $d$  which changes the sign of the inequality which changes the system's asymptotic behavior and can lead the least efficient species or individual to win. The following figure highlights this situation (Fig. 7.1):

**Fig. 7.1** Asymptotic behaviour system



**Table 7.2** Level of doping for different values for r and s

|  |   |
|--|---|
| Case 1 $\Delta r > \Delta s$<br>Very high doping | $r_x >> r_y$<br>Low doping                    |
| $\Delta s > \Delta r$<br>Low doping              | $s_x >> s_y$<br>Low doping                    |
| $r_x > r_y$<br>$s_x < s_y$<br>High doping        | $r_x < r_y$<br>$s_x > s_y$<br>Very low doping |

The biological ecological model can help us understand which sports are at higher risk for doping and the contagion mechanism that brings doping to spread more in specific disciplines.

The previous reasoning gives us the reply to the first question. The sign of the inequality may change, either because of an increase in the numerator r or because of a decrease in the denominator. The numerator is linked to the individual performance that can be improved by training, obviously up to a degree. The denominator, on the other hand, is linked to the individual’s characteristics that make it possible to obtain better results, effort being equal. In sport we can distinguish between two types of competition: those in which individual performance is the dominant factor and those in which individual performance is important but not decisive and is accompanied by other factors. Team sports and sports such as tennis that require a high level of mental focus belong to the second type.

Thus, to change the outcome of a competition it is necessary either to improve individual performance or to enhance the capacity of obtaining better results, effort being equal. Doping acts on the first aspect, while it has almost no effectiveness on the second. Thus, the sports at highest risk for doping are those in which individual performance is the dominant factor. The fact that doping is present, albeit with lower intensity in the other disciplines too is due to the fact that the decrease in the denominator is much harder to influence and in any case, irrespective of the sport, the increase in performance always produces a higher probability of winning.

We can thus obtain the following taxonomy (Table 7.2):



To explain the prevalence of doping within a single sports discipline, we can refer to evolutionary games.

## 7.4 The Evolutionary Games Approach

To introduce an evolutionary approach we need a standard definition of fitness. In biological models, fitness is defined as probability of survival. In economic modeling, fitness is synonymous with payoff. In evolutionary game modeling, fitness can be defined by reference to an individual agent or a group of agents.

The evolutionary game context places some strong limitations in terms of “behavioral content” of the models. An approach based on game theory is a very simple description of reality.

Referring to the definition provided in the preceding paragraph, let us consider a specific sport in which opting for doping would confer an advantage.

Players may therefore decide to behave fairly (not to use doping) – and we can identify them as player(nodop) – or, alternatively, to behave unfairly, by resorting to doping, player(dop).

The payoff will depend on the type of player that will emerge. This will depend on the share of players that use doping in the whole population of players. If  $k$  is the ratio of players(nodop) to the whole population and  $(1-k)$  is the ratio of players(dop) to the whole population, the expected payoff will be

$$E(\text{nodop}) = k\Pi_{\text{nodop}}^s + (1-k)\Pi_{\text{nodop}}^c \quad (7.3)$$

$$E(\text{dop}) = k\Pi_{\text{dop}}^c + (1-k)\Pi_{\text{dop}}^s \quad (7.4)$$

where  $\Pi_{\text{nodop}}^s$  is the payoff of players when all players decide to follow the nodoping strategy,  $\Pi_{\text{dop}}^s$  is the payoff of players when they all choose the doping strategy,  $\Pi_{\text{dop}}^c$  is the payoff when the first group opts for doping and the second for nodoping, and  $\Pi_{\text{nodop}}^c$  is the payoff when the first group opts for nodoping and the second for doping.

A repeated game is the description of the dynamic evolution within a sports discipline in which there is a competition between athletes that resort to doping and athletes who do not make use of doping. Thus, three outcomes are possible:

1. Only athletes that use doping manage to achieve major results
2. Only athletes that do not use doping manage to achieve major results
3. Wins are distributed between the two groups.

In the first two cases, there will be a specialization of the discipline: in the first case, doping will be the dominant situation, while in the second case, doping will be absent. In the third case, there will be coexistence of athletes that use doping and athletes who do not.

However, since the payoff depends on the number of athletes that choose one of the two approaches, the effectiveness of doping in terms of performance enhancement and the presence of a significant number of athletes that use banned substances are incentives leading to the exponential growth of the level of doping in that sports discipline.

## 7.5 Some First Conclusions

Doping is certainly a complex, multifaceted phenomenon, which is on the rise owing to the increasingly competitive view of sport and society.

This paper has attempted to describe some of the characteristics of doping that may be useful for planning anti-doping policies. The payoffs of doping and the number of athletes using it are key elements to understand the extent to which doping can penetrate a discipline, spread within it, and become a widespread practice. The fight against doping must certainly focus on penalties and on ever greater and stronger controls. However, it must also promote a change of mentality that focuses on the values of sportsmanship and fair play. The unbalanced emphasis on success, which is not only sporting success but also becomes economic success and fame is a strong factor in pushing the demand for doping.

Understanding the evolutionary and “contagious” dynamics of doping is certainly the first step for fighting it with the right tools.

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# Chapter 8

## Sustainability Performance in Sport Facilities Management

Susana Lucas, Manuel Duarte Pinheiro, and María de la Cruz Del Río-Rama

**Abstract** Sport facilities have a major environmental impact in addition to a strong public profile and social responsibility. Big facilities, as football stadiums, over different life cycles use resources like energy, water, and materials; need transport; and have many other environmental, social, and economic impacts. Progressive sports and facilities managers are more conscious of their responsibilities to reduce energy, water usage, and waste production and not only to reduce environmental impacts which may also reduce costs.

This chapter analyzes how environmental and sustainable solutions are being considered at sport facilities and organizations like FIFA and UEFA and in what way to assess and apply presently a specific approach designated as Dynamic Management System for Sustainability in Sport Facilities (DM3S). Football sport international organizations like FIFA and UEFA have assumed an environmental awareness and progressive change from green approaches to sustainable search.

This chapter presents an analysis of ten Euro 2004 Portuguese football stadiums, especially FC Porto Stadium with DM3S highlighting the best performance and opportunities and improvements and also the utility of the approach. A comparison with other international old and newer stadiums also shows an evolution in sport facilities environmental design and management.

Sport facilities have a role in identifying sustainability and in beginning to search for a broader view and a more efficient approach which can be multidimensional and must consider all life cycle.

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**Keywords** Sustainability performance • Sport management • Sport facilities • Management system

## 8.1 Introduction

Sustainability is a world concern, and there are challenges at different levels which include corporations, new and current environmental legislation, environment impacts, product life cycle, and the many stakeholders involved (Morioka and de Carvalho 2016).

Sport facilities comprise different equipment, for example, Olympic Games could involve stadiums, gymnasiums, playing fields, swimming pools, sky resorts, road races, trails, and watercourses (Chernushenko et al. 2001).

Sport facilities can alter the use of soil; consume energy, water, and produce waste; need transport; and have environmental, social, and economic impact changing over time and different life cycle phases.

For example, the British football stadium belonging to Forest Green Rovers with good environmental practices has developed core indicators (Forest Green Rovers (FGR) 2016a) in 2011/2012 per member of staff (32): energy consumption of 21.3 MWh, 250 m<sup>3</sup> of water, and 1.1 tonnes of waste produced; more detail is presented in Table 8.1 that is published in the environment report.

Energy consumed by national and international sport events will continue to increase as sporting leagues grow around the world (Pfahl 2013).

Facilities and stadiums have environmental impacts; every sport venue is built, maintained, renovated, and demolished, and a new one built at some point (Pfahl 2013).

As Pfahl (2013) states “Sport is, for the most part, an enjoyable experience drawing billions of people to games, events. Yet, this fun comes with consequences

**Table 8.1** Core performance indicators for the 2011/12 FGR season (Forest Green Rovers (FGR) 2016a)

| 2011/2012                        | A<br>Total annual<br>input/impact | B<br>Overall annual output | R<br>Ratio of A to B |
|----------------------------------|-----------------------------------|----------------------------|----------------------|
| Energy efficiency                | 681.9 MWh                         | 32 persons                 | 21.3 MWh             |
| Water                            | 6879.5 m <sup>3</sup>             | 32 persons                 | 215.0 m <sup>3</sup> |
| Waste – general                  | 36.04 tonnes                      | 32 persons                 | 1.1 tonnes           |
| Waste – hazardous                | 0.0 tonnes                        | 32 persons                 | 0.00 tonnes          |
| Waste – recycled                 | 62.05 tonnes                      | 32 persons                 | 1.9 tonnes           |
| Biodiversity                     | 28,400 m <sup>2</sup>             | 32 persons                 | 887.5 m <sup>2</sup> |
| Emissions – from electricity use | 153.4 tonnes                      | 32 persons                 | 4.8 tonnes           |
| Emissions – from gas use         | 69.0 tonnes                       | 32 persons                 | 2.2 tonnes           |
| Emissions – from transport use   | 0.4 tonnes                        | 32 persons                 | 0.01 tonnes          |
| Emissions – total                | 222.8 tonnes                      | 32 persons                 | 7.0 tonnes           |

that go beyond the game as those individual actions are multiplied by millions and millions of people each year all around the world. An enormous amount of waste is generated at sporting events, from packaging, plates, and bottles to food waste. Resources like water and energy are used to power the games and to keep playing fields lush. Carbon emissions from travel to and from events by all stakeholders also factor into the calculation of consequences.”

Grant (2014) states that during both their construction and general usage, sport stadiums create important environmental problems and also calls the sport stadiums as *green monsters*.

Mallen and Chard (2012) highlight that sport facilities need to consider transforming for environmental requirements and sustainability and noted that all organizations are now confronted with an environmental degradation situation.

This means that there is a need to shift to practices that support environmental sustainability (ES) or the safeguarding of the natural environment (Mallen and Chard 2012).

Therefore, the design and facilities management needs to integrate environmental legislation and manage environmental impacts. Sport teams need to introduce measures to decrease the environmental negative impact of their stadiums (Grant 2014).

Examples of good social and economic contributions are being implemented and published. Elmualim et al. (2010) conclude that there is a pressing need for practical tools for sustainable facilities management as well as a need for the facilities managers championing the cause of sustainability within their organizations.

Sport sustainable management is to gain importance and appear as new approach to sport, and management challenges involve design, building, operation, and maintenance (Chernushenko et al. 2001).

Chernushenko et al. (2001) state that “Sport is sustainable when it meets the needs of today’s sporting community while contributing to the improvement of future sport opportunities for all and the improvement of the integrity of the natural and social environment on which it depends.”

Examples of several events and countries, like football Euro 2004 stadiums at Portugal (Lucas 2013), show that approaches with sustainable direction apply management systems which have environmental, social, and economic impacts, although they may not be entirely correct.

The Sustainable Performance in Sport Facilities Management, which is analyzed in this chapter, is divided into the following elements:

- Brief review of the evolution of the approaches from green to sustainability performance assessment and management (Sect. 8.2).
- Identify the main criterion and parameters considered in sustainability management (Sect. 8.3).
- Present Dynamic Management System for Sustainability in Sport Facilities (Sect. 8.4).
- Cases analyses and critical analysis using this system approach (Sect. 8.5).
- Conclusion – analyze weak points and opportunities to improve sustainable management in sport facilities (Sect. 8.6).

## 8.2 From Green to Sustainability

### 8.2.1 *The Environmental Awakening in Sport*

Progressive sport and facilities managers try to be greener by reducing energy, water, and waste production not only to reduce environmental impact but also to reduce costs (Pfahl 2013).

Pfahl (2013) states that facilities management personnel were early movers in the environmental change process and they attempt to create mechanism to reduce and recycle waste, save water and energy, search more environmentally friendly cleaning products, and green other environmental operations.

Different sport facilities have different impacts and management challenges. The impacts of travel energy consumption and CO<sub>2</sub> i are key points. Studies based on life cycle assessment (LCA) have calculated carbon footprint for some sport events activities like travel (Dolf and Teehan 2015a) for team and spectators:

- Spectator (40,000 spectators): the average travel distance was 186 km per person, and over a UBC Thunderbirds athletic season, it generated a carbon footprint of 960 tonnes CO<sub>2</sub>e.
- For the 2011–2012 season, the total UBC team carbon footprint was 630 tonnes CO<sub>2</sub>e, and the average carbon footprint per team member per event was 59 kg CO<sub>2</sub>e.

The biggest opportunities for footprint reductions by spectators and teams alike are strategies that (a) reduce long-distance air travel, (b) increase vehicle occupancy rates, and (c) encourage low-emission travel mode choices (Dolf and Teehan 2015b).

### 8.2.2 *Green Design and Sustainability in Sport and Recreation Facilities*

The design and refurbishment of sport facilities begin with the use of green principles in construction based on experiences of major associations like FIFA and UEFA. For example, the lessons learned in 2006 for the FIFA World Cup in Germany began in 2007 by promoting environmental sustainability with a program called Green Goal™. This program required to implement measures with energy efficiency, climatic, water, and waste besides others.

The principal goals of the program are the reduction in the consumption of potable water, the avoidance and/or reduction of waste, the creation of a more efficient energy system, and an increase in the use of public transport to FIFA events. Proposals include:

*Water:* A more responsible use of potable water for purposes of irrigation should be examined. Green Goal™ suggests the storage of rainwater to support the water cycle. Further potential savings could be made



through the installation of water-saving technology in sanitary fittings during the construction phase.

*Waste:* A major cost of stadium management is the removal of waste. To limit the amount of waste generated, Green Goal™ proposes the reuse of beverage containers, recycling through the separation of waste collection, and the introduction of packaging-free food and merchandising products.

*Energy:* Energy-saving activities should be exploited in the design and construction of stadiums. Potential energy-saving areas include the use of photovoltaic energy sources, the insulation and protection of glass on the outside of the building in order to reduce the use of air conditioning, and the use of centrally controlled building control systems to better manage energy during periods of peak demand.

*Transport:* An important area of stadium and event management is the transport of spectators to the facility. Green Goal™ encourages the avoidance of unnecessary transport and the use of public transport systems such as buses and trains, which should be designed to optimize engine and fuel systems.

After the 2002 FIFA World Cup held in South Korea and Japan, the South Korean government owned 10 new stadiums. These stadiums have been operated by the relevant local governments. The search to improve efficiency and solutions is now being pursued (Park et al. 2016).

Governments have made significant efforts toward creating profits from the stadiums; it is proving to be too difficult for several administrations to cover their full operational, maintenance, and conservation costs. In order to overcome this problem, one of the governments, Seogwipo City, which owns Jeju World Cup Stadium (JWCS), is attempting to analyze feasibility of an independent renewable electricity generation system for the operation of the stadium (Park et al. 2016).

In America, several sport facilities promote best environmental practices, for example, the stadiums of New York Giants, Miami Heat, Portland Trail Blazers, and the Montreal Canadiens making commitments to environment design and conduct that allow receiving LEED, an acronym of Leadership in Energy and Environmental Design Certification system originated at USA (Pfahl 2013).

UEFA since 2008 (Euro 2008) begins to assume the analysis and search of greener and more sustainable facilities. The recommendations are separate in two different and complementary visions that had been defined with two cores: green and blue.

*Green Architecture* The term “green architecture” is used to describe environmentally conscious and sustainable design and construction principles and techniques.

The architecture of a green stadium should embrace environmentally acceptable design options and solutions before and during construction and throughout the venue’s usable life. Both FIFA and UEFA support the need for sustainable design in football stadiums. FIFA’s Green Goal initiative sets out a comprehensive set of objectives for sustainability in modern stadiums.

The key objectives of any green program are to achieve a reduction in the consumption of water, a more efficient use of energy – both in terms of production and use – good waste management, and also a reduction of the carbon footprint relating to transport of materials during the stadium construction process and travel to and from the stadium.

Many might argue that the cost of designing and building an environmentally friendly building outweighs the benefits. However, all stadium developers should be encouraged to take a positive and responsible stance by incorporating as many sustainable principles into the whole project process as possible.

Contrary to common perception, such initiatives are not always costlier; many simply require a more careful and conscientious design and thought process. Those initiatives that are more expensive can always be considered for implementation at a later stage, as and when finances permit.

*Blue Architecture* Localization not globalization promotion of sustainable building design, based on the need to save energy, reduce emissions, and respect the planet, has greatly influenced the way we think about architecture and construction. However, there is often less clarity as to how this approach affects the comfort and well-being of the end user.

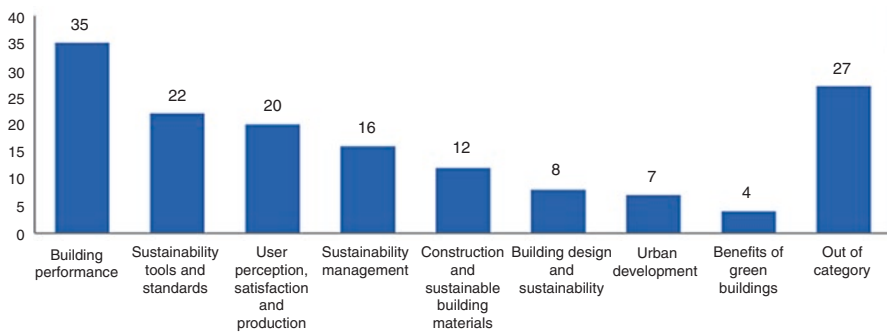
The concept of “blue architecture” places an emphasis on the need for human well-being and comfort, both psychological and physical, which should be an integral feature of any sustainable building design. It can be broadly defined as sustainable architecture for the planet and for people. Blue architecture deals with simple but important issues such as human scale, psychology, culture, and ergonomics. Furthermore, it encourages a design sensibility and interpretation that seeks to go beyond the client’s basic requirements and thus aims to give the project added value.

Blue architecture also focuses on the importance of creating a sense of place and encouraging social interaction, which is especially significant in buildings such as stadiums, where the idea of fostering community is very relevant. This can be promoted through a variety of additional facilities and activities within a stadium complex that can provide the community with much needed leisure facilities, without forgetting the commercial benefits that these will bring to the stadium developer.

This design philosophy can be encapsulated by the slogan “localisation not globalisation,” in that it seeks to understand the localized and individual essence of any given project rather than treating a building as a generic production line commodity.

### ***8.2.3 Sustainable Sport Facilities Management Parallel Search for Better Environmental Performance***

The green search for solutions and management option in several sport facilities begins also balance with less costs and in other cases also with social focus, that evolution begins to assume that involves the three bottom lines (economic, environmental, and social), so changing from green to sustainability.



**Fig. 8.1** Main topics in sustainable facilities management research (Source: Nielsen et al. (2016b))

An overview of the current research sustainable of sustainability in facilities management (Nielsen et al. 2016) using a literature review included screening of almost 20,000 articles from the period of 2007–2012. Of the articles reviewed, 151 were identified as key articles and categorized according to topic. These analyses allow us to highlight the outcomes of the research (Fig. 8.1).

Building performance like energy, CO<sub>2</sub>, and others is the main focus to follow by applying the analysis of sustainability tools, green building indicators and certifications, especially developed tools and measurement systems or analyzing tool performance.

The practice of sustainable facilities management (SFM) is rapidly evolving with the increasing interest in the discourse of sustainable development in some cases resulting from international movement to climate change (Elmualim et al. 2010).

A survey of 251 individual facilities managers (Elmualim et al. 2010) found that apart from the diversity of the FM roles and the traditional undervaluation of the contribution it makes to the success of organizations, these organizations are partially responsible for lack of success in achieving sustainable facilities.

The overwhelming barrier for SFM practice is the *lack of understanding*, focus, and commitment of senior executives in appreciating the opportunities, threats, and need for strategic leadership and direction in driving essential change and hence further the sustainability agenda (Elmualim et al. 2010).

Today, stadiums developers and teams often compete to determine which team is the greenest (Pfahl 2013). To assure sustainable approach is efficient is essential to have knowledge and tools to support the decisions and the management.

Clubs and football facilities search to improve environmental performance, beginning with measures that could also improve environmental and economic (operational costs) or environmental management system like ISO 14001 or Eco-Management and Audit Scheme (EMAS).

*Environmental Management System Implementation and Certification* FC Porto had in 2007 been certified by Environment Management System ISO 14001 (see Sect. 8.5.2); more recently, the Britain FGR football club and stadium in 2012 achieved the EMAS – the gold standard for environmental performance.

In the world of football, no club had EMAS until that date. EMAS systems enable measurement, targeting, and reporting on all key environmental impacts (Forest Green Rovers (FGR) 2016b).

The FGR interesting evolution is evident in the environmental and sustainable reports (4) that have been published. FRG chairman says that FGR approaches “remains pretty unique in the world of football” (Forest Green Rovers (FGR) 2016a).

## 8.3 Main Aspects to Be Considered in Sport Facilities Sustainability Management

### 8.3.1 Sustainability Challenges a Multidimensional Approach

The FIFA and UEFA guidelines and practice show that sport facilities sustainability management must involve several areas and a systematic approach. In 2010, the FIFA Green Goal Initiative continued its implementation at FIFA events through host city Cape Town, where 41 projects were developed in several areas, which were divided into the following intervention areas:

1. Energy and climate change, through measures to minimize the carbon footprint of the event
2. Water conservation by reducing the consumption of drinking water and promoting the conservation of water resources
3. Integrated waste management by reducing, reusing, and recycling waste
4. Transport, mobility and access, universal mobility and accessibility, and reduction of air pollution
5. Landscaping and biodiversity, better and more integrated
6. Green buildings and sustainable life cycle, promoting practices for efficient buildings and environmental awareness
7. Responsible tourism, both for the event and after
8. Green goal communication to both residents and visitors
9. Monitoring, measuring, and reporting the progress of the implementation of the different Green Goal measures

UEFA recommended that the design team’s objective should be to incorporate initiatives and proposals that:

- Reduce general energy consumption.
- Reduce waste and carbon emissions.
- Introduce the means to generate energy locally.
- Promote the rational use and recycling of natural resources, primarily water.

The implementation of such measures will help reduce running costs and overheads, providing direct and long-term financial benefits to the stadium operator; each option could have important implications.

An example could be lower energy consumption with passive or active measures. Reduced energy consumption and sustainable design can be achieved through what are known as passive (e.g., building design and construction) and active (e.g., mechanical systems) measures. But better environmental performance and sustainability in facilities management means enlarge and include different areas.

### **8.3.2 Key Concepts for Sport Facilities Sustainability Management**

From the earliest stage in the stadium project, environmentally friendly and sustainable principles can be integrated into the process. The main areas where sustainable initiatives can be implemented, through both passive and active measures, fall into three broad categories: energy, water, and materials, which include other components like waste or transport or social and local parameters that are explained in the next topics.

*Energy* There is a whole range of measures that the stadium developer can take in order to reduce energy consumption, from the selection of the location to the methods and materials used in the design and construction process, and, of course, for the actual day-to-day running of the stadium once it is operational.

*Passive measures:* Passive sustainable measures are those that can be achieved entirely by means of good urban planning and architectural design, without recourse to any mechanical or technological solutions or other active measures. Historically, most vernacular (or local) architecture has tackled the problem of extreme weather conditions by using passive techniques such as shading from the sun using screens or narrow streets, cooling and ventilation towers, thick walls and grass roofs.

*Active measures:* Active measures are those which use technological systems and installations to produce energy in order to heat or cool a building in a more efficient manner. Such systems may have higher up-front capital costs, but these can often be offset in the long term by the savings accrued in running costs.

*Building Services Systems* The energy-efficient design of heating, ventilation, and air conditioning systems is vital to reduce energy consumption and running costs. It is equally important to establish and implement the optimal management strategies for these systems throughout the life of the building.

*Facades:* Building facades that provide thermal as well as acoustic insulation will enable big savings in heating and cooling costs.

- Evapotranspiration:* This is the cooling effect created by wind or ventilation through trees and another flora. The landscape design around the stadium can harness the benefits of evapotranspiration, as air mass that circulates through trees located close to the stadium will create a cooling effect during the summer. In winter, these same trees will provide protection against prevailing winds.
- Energy-efficient lighting:* Use of energy-efficient lighting throughout the general building areas can drastically reduce energy consumption and costs. Low-consumption sodium lamps are the recommended option.
- Natural light:* Making use of natural daylight wherever possible within the design will drastically reduce the need for artificial lighting and, therefore, energy consumption.
- Natural cooling:* Sun-shade protection can be provided by the roof structure and covering. Using sun protection elements (e.g., louvers, overhangs, or false facades that are free of highly heat-absorbent materials) will help prevent surfaces from overheating and will naturally cool external areas that are hidden from the sun, thus omitting the need to install artificial cooling systems that consume large amounts of energy.
- Natural ventilation:* Natural ventilation can contribute to temperature control and improve stadium air quality, reducing the risk of heat-related discomfort, which is likely to occur when large crowds congregate, and preventing damp and surface condensation. Designs that include good natural ventilation will also reduce the need for energy-intensive mechanical ventilation and cooling systems.
- Solar panels:* Natural heat generation from solar panels can be used to reduce a stadium's dependence on conventional sources and also reduce overall energy consumption.

For example, hot water for sinks and showers can be provided by the collection, storage, and use of low-temperature solar energy produced by solar panels.

- Photovoltaic panels:* Photovoltaic panels produce electricity whenever sunlight shines on them. They require little maintenance, create zero pollution, and require no mechanical operation. The installation of photovoltaic panels on stadium roofs has proved to be very effective.
- Wind energy:* Wind is now a major source of energy in many parts of Europe, and wind turbine technology is advancing rapidly. It may be viable to install a series of small wind turbines in the vicinity of the stadium to produce electricity for internal use, or to feed into the local grid if there is a surplus.

*Cogeneration:* Cogeneration refers to the harnessing of the heat produced during electricity generation. Traditionally, this heat was simply dissipated into the atmosphere.

However, cogeneration schemes enable it to be used for stadium heating systems and/or the production of hot water.

*Water* Stadium developers should encourage and promote the more responsible use of water, through reduced consumption and recycling.

*Availability:* The ready availability of water will vary depending on the country and specific location. Safe drinking water is scarce in many countries. The methods for treating the water available and the way it is then used are crucial factors in any stadium design.

*Rainwater harvesting:* The benefits of collecting rainwater include lower fresh-water use, reduced energy and chemical consumption, and increased water conservation. Rainwater can be channeled from the roof and pitch into temporary storage facilities for treatment and later used for pitch irrigation.

*Recycling:* Water from showers and other “clean” areas (known as gray water) can be recycled for reuse in the toilets to achieve substantial water savings. In some cases, agreements may even be reached with local sewage plants to draw from their recycled water to service the toilets, and also irrigate the pitch.

*Waterless urinals:* Waterless urinals that use a “trap insert” filled with a sealant liquid instead of water are another means of reducing water consumption.

*Materials* The responsible selection of construction materials can have major environmental benefits. Materials that have been recycled or have environmentally friendly certification should always be given preference where possible.

*Material sourcing and manufacture:* It is not only the materials themselves but also the means by which they have been produced and sourced that is important. Construction materials sourced close to the stadium will reduce transport costs and, hence, lower the carbon footprint.

*Material recycling:* The choice of materials, their fabrication, construction, maintenance, demolition, and disposal have repercussions both on the environment and on the health of users; hence, the recycling of materials should be actively encouraged.

*Waste* Waste from construction sites is a major environmental issue, as is the day-to-day waste of energy through poor management. Waste-conscious site management and maximum use of recycled materials should be promoted to counter unnecessary waste.

Once operational, the stadium needs to have strategies and systems for managing the waste produced by the users. This needs to be carefully addressed both by the stadium operator, who should employ a system for segregating organic and recyclable waste, and also by the end recipient of the waste being generated.

It is equally important for stadiums to have a comprehensive waste management and treatment plan. Waste has a big impact on the environment, therefore careful thought should be given to which materials are used and the impact of their disposal should be properly anticipated. The core objectives of stadium designers and developers who embrace the blue architecture philosophy are:

- To foster the well-being, health, and comfort of the users through a human-centric design
- To design with a human scale, for example, by creating pleasant environments and sequential architectural routes
- To create a sense of place by incorporating user-friendly and adequate access to the stadium, meeting areas for social events, plazas, courtyards, amenities, gardens, and promenades
- To advocate a flexible approach to the stadium design by creating diverse and multifunctional spaces, thus expanding its public appeal and exploiting its marketability
- To encourage the use and enjoyment of common spaces to enhance social interaction

*Transport* All initiatives designed to promote and maximize use of public transport will be beneficial, as reducing private vehicle use will significantly reduce the stadium's overall energy and carbon footprint.

Eco-friendly or low-impact transport can be encouraged by ensuring that, in addition to good access to the public transport infrastructure, there are adequate pedestrian routes and cycle paths within the stadium complex and in the surrounding area, to encourage pedestrians and cyclists.

*Social and Local Dimension* The following guidelines outline some of the ways in which stadiums can be made more people-friendly:

*Club/team identity:* Regardless of the size or status of a stadium, it should be possible for the club/team's identity to form an integral part of the structure, for example, by incorporating the team colors and emblems into the design.

*Local/regional identity:* The local/regional context can also be emphasized within the design concept. A stadium should become a local icon that symbolizes the



pride and unity of the community. The facade could incorporate motifs that reflect the local geography, traditions, designs, colors, etc. Measures such as this can help intensify the emotional bond between the users, the local community, and the stadium.

*Traditional and cultural values:* It is important to find ways to incorporate local traditions and culture within the stadium design and use. The traditional can often be interwoven with the contemporary to great effect.

*Surroundings and context:* A proper understanding of the surrounding environment and urban context will help ensure that the stadium is fully integrated into its neighborhood. Design work should always be undertaken with a sensitive and holistic approach to produce a building that merges into, and enhances, the surrounding urban fabric and does not clash with it.

*Views and perspectives:* It is desirable to create clear sightlines and perspective views of the stadium, both from afar and close-up, as this will help promote a positive perception of the new building.

Making use of existing visual axes, such as a major boulevard approach to the stadium, or taking advantage of highly exposed frontage views from busy roads or motorways, can help the stadium to make a positive, and dramatic, mark on the urban landscape.

*Leisure and recreational facilities:* Recreation/play areas, gyms and sport facilities, rest areas, etc. will add value to the stadium, by promoting health and well-being and by increasing opportunities for social interaction.

*Social facilities and amenities:* The integration of activities and facilities that promote social interaction and encourage family participation will add real value to the overall stadium offering. These might include facilities such as a club museum or visitor's center, a children's play area, a nursery, family-friendly restaurants, etc.

*Commercial facilities:* The inclusion of cafeterias, restaurants, and high-street services such as banks and travel agents not only provides additional revenue streams; it can reinforce the stadium's position as a focal point for the local community.

- Cultural and educational use:* Stadiums have huge potential to be used as cultural and educational spaces. Library or reading areas, multimedia spaces, and exhibition and gallery spaces are just a few of the possibilities that can be explored in this sphere.
- Landscaped spaces:* Spaces such as plazas and courtyards, landscaped transition areas, and water features will visually enhance the stadium complex, and they will also help to produce a more people-friendly environment.
- Psychology and health:* A stadium is more than just the sum of its physical parts. In order for it to become more than just a functional building, but one that is attractive and comfortable, it needs to satisfy certain psychological needs. Entrance areas for large volumes of people should be spacious with high ceilings. Conversely, it is often desirable for spaces such as rest areas and bars to be more intimate in terms of their dimensions and design. The objective is to stimulate all of the human senses in order to create an overall feeling of well-being and to avoid creating spaces that alienate the user.
- Accessibility and ergonomics:* Easy access, circulation, and orientation (e.g., clear visual lines and signage) are crucial components of any user-friendly building. From the macroscale right down to the details, all features of the building design should be conceived with human ergonomics and comfort firmly to the fore.
- Sensory stimulation:* A variety of design techniques – thermal, acoustic, visual, tactile, and olfactory – can be used to enhance the human senses and feeling of comfort, either consciously or subconsciously. For example, differing intensities of light – whether natural or artificial – can be used to stimulate the senses, as can the use of flora, colors, and textures.

*From Concepts to Implementation* Selecting and applying concepts and good environmental and sustainable practice could be done using a comprehensive approach like Dynamic Management System for Sustainability in Sport Facilities that is present in the next point.

## 8.4 Dynamic Management System for Sustainability in Sport Facilities

### 8.4.1 DM3S Objective and Structure

Dynamic Management System for Sustainability in Sport Facilities (DM3S): DM3S is the basis for structuring the measures to be selected and implemented. DM3S is organized into six major strands with several subdivisions (Lucas 2013) and systematization of the information integrating existing proposals of:

- Sustainability certification systems, especially LiderA<sup>1</sup> which is divided into strands and criteria where the measures are presented (Pinheiro 2014)
- Sustainability requirements of FIFA and UEFA (previously presented)
- Football stadiums' benchmarking case measures (previously presented)

That integration is organized into six major strands of sustainability for consideration:

1. Use of resources
2. Environmental impacts
3. Comfort of spaces
4. Mobility
5. Amenities/social connection
6. Quality management of services

Six aspects, a systematization of the lines of action, that is, the six global strands of action. Its selection and distribution, in addition to having the said information collection, also had a sequential assumption.

The first aspect is related to the basic need for resources, and their use. The second relates to environmental impacts; this is followed by components related to the users' comfort and use of space. Mobility, access, circulation, and interaction with other users are next considered. The role of partners and their communities and their amenities/social connection is next considered. Finally, the aspect related to the overall control of all the previous elements, that is, the quality management of the services and operation of the stadium, is considered with a view to its sustainability.

### 8.4.2 DM3S Main Measures, Criteria, and Performance Scale

The six strands are subdivided into 31 criteria, which are divided into 90 indicators where the various measures to be implemented for sustainability are defined. A summary of the criteria considered for each of the six strands is indicated in Table 8.2.

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<sup>1</sup>LiderA is a Portuguese sustainable assessment system to support and certify sustainable construction.

**Table 8.2** Measures for dynamic management model of sustainability performance (Lucas 2013)

| Strand                         | Criteria                               |
|--------------------------------|--|
| 1. Resources                   | 1.1. Energy                            |
|                                | 1.2. Water                             |
|                                | 1.3. Materials                         |
| 2. Environmental impacts       | 2.1. Effluents                         |
|                                | 2.2. Domestic waste                    |
|                                | 2.3. Noise                             |
|                                | 2.4. Light pollution/thermal pollution |
|                                | 2.5. Cleaning                          |
|                                | 2.6. Refrigeration system              |
| 3. Comfort of spaces           | 3.1. Indoor air quality                |
|                                | 3.2. Thermal comfort                   |
|                                | 3.3. Natural lighting                  |
|                                | 3.4. Acoustic                          |
| 4. Mobility                    | 4.1. Mobility plan                     |
|                                | 4.2. Trip plan                         |
|                                | 4.3. Public transportation             |
|                                | 4.4. Ecological transportation         |
|                                | 4.5. Parking                           |
| 5. Amenities/social connection | 5.1. "Green" spaces                    |
|                                | 5.2. Social interaction                |
|                                | 5.3. Available services                |
|                                | 5.4. Community identification          |
|                                | 5.5. Social action                     |
| 6. Service quality management  | 6.1. Integrated system                 |
|                                | 6.2. Strategic plan for sustainability |
|                                | 6.3. Innovation/improvement            |
|                                | 6.4. Security, protection, and risk    |
|                                | 6.5. Versatility of spaces             |
|                                | 6.6. Brand and reputation              |
|                                | 6.7. Information                       |
|                                | 6.8. Partners                          |

The performance scale starts in performance E (low) and can reach A ++ performance (maximum). The definition of this scale of performance is based on that defined in the LiderA certification system, the scale from letter E to A ++; however, in this case, percentages of indicators implemented to define each level of performance were considered. The division of level is based on the percentage of indicators applied.

## 8.5 Case Analysis

### 8.5.1 *Introduction of Euro 2004 Portuguese Stadium and Environmental Approaches*

For football stadium for Euro 2004 in Portugal, 10 stadiums were build and refurbished, in different Portuguese regions (North, Center, Lisbon, and South regions) with a capacity range from 30,000 places to near 65,700 places, with an investment larger than 521 million euros, and with public and private facilities management (Table 8.3). In Table 8.3, the principal characteristics are presented. This approach shows the different kinds of dimension.

An analysis of the measures with DM3S highlights that all the stadiums have implemented some environmental measures at least to minimize construction impacts or reuse materials and that others integrate that measures in the facilities operations.

Some stadiums (Aveiro, Leiria, and Algarve) have been built in new places with weak link to urban development and also weak sport dynamic. These stadiums now have low use with huge economic problems show unsustainable perspectives and this options.

The FC Porto Stadium, Sporting, and Benfica (both of Lisbon) that are the largest football clubs have adopted a full set of measures from construction to operation. FC Porto also implements and certifies management system assuming the importance of environmental management.

### 8.5.2 *FC Porto Stadium: Assessment and Potential Improvement*

Dragon Stadium (O Porto) has ISO 9001 and 14001 certifications and is selected to show the application of the Dynamic Management System for Sustainability in Sport Facilities, an interview, local, and data analysis is done to this approach. The results are shown in Tables 8.4, 8.5, and 8.6.

Global score for stadium is a B with 50% indicators applied. More slim analysis of the results by Dynamic Management System for Sustainability in Sport Facilities shows that energy has a full set of measures (A+) and mobility is the worst performance (C) that is detailed in the next two tables.

Dragon Stadium, in terms of strands, has a higher ranking in relation to resources, environmental impacts, and quality of service management. This high concern in these areas is present in the Dragon Stadium management due to the fact that it has been certified by ISO 9001 and ISO 14001, that is, quality and environmental management, which has been the focus of the sustainability approach.

**Table 8.3** Portuguese stadiums, principal characteristics

| Stadium                                 | Area and places  | Mobility access      | Investment      | Management type            | Environmental approach   |
|---|------------------|----------------------|-----------------|----------------------------|--|
| New/refurbishment                       |                  |                      |                 |                            |  |
| Axa Stadium (Braga)                     | 10 ha<br>30.286  | Road                 | €72.000.000,00  | Mixed (private and public) | Reuse place (Quarry) and several measures                                  |
| Dragão Stadium (Porto)                  | 1,5 ha<br>50.948 | Road, railway, metro | €97.700.000,00  | Private                    | Reuse material and several sustainable measures include EMS certification* |
| Aveiro Stadium                          | 32 ha<br>30.127  | Road, bus            | €43.300.000,00  | Public                     | New place** and few environmental measures                                 |
| City of Coimbra Stadium (Coimbra)       | 30.000           | Road, bus            | €36.200.00,00   | Private                    | Urban area, integrate a commercial area and limited number measures        |
| Dr. Magalhães Pessoa Stadium (Leiria)   | 41 ha<br>23.164  | Road, bus            | €63.000.000,00  | Public                     | New place** and few environmental measures                                 |
| Alvalade Stadium (Lisbon)               | 50.049           | Road, bus, metro     | No precise data | Private                    | Urban area, integrate a commercial area and large range of measures        |
| Luz Stadium (Lisbon)                    | 10 ha<br>65.647  | Road, bus, metro     | €118.700.000,00 | Private                    | Near-commercial and urban areas and a large range of measures              |
| Algarve Stadium (Faro/Loulé)            | 225 ha<br>30.305 | Road                 | €30.700.000,00  | Public                     | New place** and few sustainable measures                                   |
| Bessa Stadium (Porto)                   | 10 ha<br>30.000  | Road, bus            | €40.700.000,00  | Private                    | Urban area and several environmental measures                              |
| D. Afonso Henriques Stadium (Guimarães) | 5 ha<br>30.000   | Road                 | €51.600.000,00  | Private                    | Urban area and several environmental measures                              |

**Table 8.4** Dynamic Management System for Sustainability in Dragon Stadium (Lucas 2013)

| Shed                           | Criteria                               | Indicators Applied | Performance Level |
|--------------------------------|--|--------------------|-------------------|
| 1. Resources                   | 1.1. Energy                            | 76%                | A+                |
|                                | 1.2. Water                             |                    |                   |
|                                | 1.3. Materials                         |                    |                   |
| 2. Environmental impacts       | 2.1. Effluents                         | 57%                | A                 |
|                                | 2.2. Domestic waste                    |                    |                   |
|                                | 2.3. Noise                             |                    |                   |
|                                | 2.4. Light and thermal pollution       |                    |                   |
|                                | 2.5. Cleaning                          |                    |                   |
|                                | 2.6. Refrigeration system              |                    |                   |
| 3. Comfort of spaces           | 3.1. Indoor air quality                | 38%                | B                 |
|                                | 3.2. Thermal comfort                   |                    |                   |
|                                | 3.3. Natural lighting                  |                    |                   |
|                                | 3.4. Acoustic                          |                    |                   |
| 4. Mobility                    | 4.1. Mobility plan                     | 15%                | C                 |
|                                | 4.2. Trip plan                         |                    |                   |
|                                | 4.3. Public transportation             |                    |                   |
|                                | 4.4. Ecological transportation         |                    |                   |
|                                | 4.5. Parking                           |                    |                   |
| 5. Amenities/social connection | 5.1. "Green" spaces                    | 29%                | B                 |
|                                | 5.2. Social interaction                |                    |                   |
|                                | 5.3. Available services                |                    |                   |
|                                | 5.4. Community identification          |                    |                   |
|                                | 5.5. Social action                     |                    |                   |
| 6. Service quality management  | 6.1. Integrated system                 | 67%                | A                 |
|                                | 6.2. Strategic plan for sustainability |                    |                   |
|                                | 6.3. Innovation/improvement            |                    |                   |
|                                | 6.4. Security, protection, and risk    |                    |                   |
|                                | 6.5. Versatility of spaces             |                    |                   |
|                                | 6.6. Brand and reputation              |                    |                   |
|                                | 6.7. Information                       |                    |                   |
|                                | 6.8. Partners                          |                    |                   |

Overall, Dragon Stadium presents a fairly satisfactory initial performance appraisal of sustainability, level B, e.g., sustainability is already under consideration in the current management of the stadium.

However, it was verified that its management team is looking for the promotion of other aspects, especially social, and it has been verified that there is an awareness of sustainability in management.

**Table 8.5** Dragon Stadium resources assessment

| Shed                    | Criteria   | Indicators  | Measures  | Information collection   | Status  | No. of existing indicators |
|-------------------------|--|---|---|--|---|----------------------------|
| 1. Resources            | 1.1. Energy  | Consumption Control   | Global measurement, parceling and leased space, efficient management, monitoring of consumption, optimization of energy performance | Measures and indicators by game, user, by equipment and total consumption                      | Yes   | 5                          |
|                         |  | Decrease in Consumption   | Definition of measures, assessment of the contribution of measures  | Defined objectives   | Yes   |                            |
|                         |  | Efficient Lighting  | When substitution increases efficiency, increase of its contribution in consumption   | Are being replaced with LED in the parking lot   | Yes   |                            |
|                         |  | Low-carbon or zero-carbon technologies                                      | Efficient equipment and low consumption, when in new acquisitions   | Have taken into account  | Yes   |                            |
|                         |  | Renewable energy  | Production and / or purchase, increased contribution to energy consumption  | They consider that the payback period is high  | No  |                            |
|                         |  | CO <sub>2</sub> emission control  | Assessment of CO <sub>2</sub> emitted, measures for its reduction   | The carbon footprint was calculated for a game, in a master's thesis                           | Yes   |                            |
|                         |  | 1.2. Water  | Consumption control   | Global measurement, installment and leased space, efficient management, consumption monitoring | They use the same indicators defined for energy |                            |
| Decrease in consumption | Definition of measures, assessment of the contribution of measures                   | They are defined  | Yes   |  |   |                            |
| Leakage control         | Measures for their detection and implementation of preventive and corrective actions | Daily readings as a precautionary measure and inspection on the day of play | Yes   |  |   |                            |



|                |   |   |   |     |
|----------------|---|---|---|-----|
|                | Regenerated waters                        | Measures for the implementation of collection systems, possible treatment and storage, reuse in irrigation, washes and in sanitary equipment where there is no direct contact with the user and control | They have their own funding                                     | Yes |
|                | Alternative sources (including rainwater) | Measures for the implementation of collection and storage systems, use in irrigation, washes and in sanitary equipment where there is no direct contact with the user and control                       | Don't use   | No  |
|                | Efficient equipment                       | Efficient equipment and low power consumption when on new acquisitions  | Expected in budget economizers are showers and reducers of flow | Yes |
| 1.3. Materials | Current operations                        | Local purchases, green / sustainable purchases, reusable or recyclable material, durable, low impact  | Have reflected on the purchasing process                        | Yes |
|                | Remodeling of spaces                      |   |   | Yes |
|                | New construction                          |   |   | Yes |
|                | Material disclosure                       |   |   | No  |
|                | Material for users                        |   |   | No  |

3

**Table 8.6** Dragon Stadium mobility assessment

| Shed              | Criteria               | Indicators            | Measures  | Information collection | Status                 | No. of existing indicators |   |
|-------------------|------------------------|-----------------------|---|------------------------|------------------------|----------------------------|---|
| 4. Mobility       | 4.1. Mobility plan     | Existence of the plan | Development, monitoring, and disclosure of the mobility plan  |                        | No                     | 0                          |   |
|                   | 4.2. Trip plan         | Existence of the plan | Development, existence of information points, and dissemination and promotion of the travel plan and monitoring its use   |                        | No                     | 0                          |   |
|                   | 4.3. Public transports | Information           | Providing specific information for each event or type of event and monitoring the arrival to users  |                        | Site                   | Yes                        | 1 |
|                   |                        | Promotion             | Development of use campaigns and their monitoring   |                        |                        | No                         |   |
|                   | 4.4. Eco-transports    | Bicycle paths         | Implementation and creation of conditions of its use for access to the stadium, namely, proximity parking and specific services, campaigns, and events for its promotion and usage monitoring   |                        |                        | No                         | 0 |
|                   |                        | Footpaths             | Implementation and creation of conditions of its use for access to the stadium, including routes with privileged conditions of use (green spaces, rest areas, drinking fountains, etc.), campaigns, and events for its promotion and usage monitoring |                        |                        | No                         |   |
|                   |                        | Car sharing           | Proximity parking and specific services, campaigns, and events to promote and monitor usage   |                        |                        | No                         |   |
|                   | 4.5. Parking           | Electric vehicles     |   |                        |                        | No                         |   |
|                   |                        | Eco-taxi              |   |                        |                        | No                         |   |
|                   |                        | Bicycle               | Specific and privileged parking for both employees and users and monitoring their use   |                        | Started in August 2013 | Yes                        | 1 |
| Car sharing       |                        |                       |   |                        | No                     |                            |   |
| Electric vehicles |                        |                       |   |                        | No                     |                            |   |
|                   |                        | Eco-taxi              |   |                        | No                     |                            |   |

One of the aspects that the Dragon Stadium management team has verified is some difficulty in not having a systematization of what should be done for sustainability in the management of the installation.

Thus, the Dragon Stadium management team considered that the present work will be a tool for use, given that there is a systematization of what should be done for sustainability in management, as well as the definition of the path to be developed.

### **Opportunities for Improvement**

The tool allows for a framework and strategical global view, highlighting the need for study, for example, in the energy potential use of renewable energy and in mobility to begin to consider.

The comfort of spaces and amenities and social connection are other criteria that can be improved. The team of management wants to start promoting social aspects.

The Dragon Stadium management team considered that this Dynamic Management System for Sustainability in Dragon Stadium will be a tool to use, given that there is a systematization of what should be done for sustainability in management, as well as the definition of the path to be developed.

### ***8.5.3 Portuguese and International Practice***

To compare and broaden the analysis, other three European stadium areas were visited outside Portugal, which were built before (Arena Amsterdam) and after the Euro 2004 stadiums (Letzigrund in Zurich and Wroclaw Stadium in Poland). The following information can be systematized in fourteen questions (Table 8.7).

The analysis of the Table 8.7 allows to understand that sustainability is less use and understand in Portuguese stadiums that in recent international football stadiums. In some cases, city orientations to sport stadium have been seen as a problem. For example, Zurich Stadium as answers to city challenge has a high level of practice, includes the use of green energy that is very expensive, and sees that as a problem and not as an opportunity.

In all of the cases, this can improve the connection with scientific and higher education system and promote integrated sustainable strategies, integrated high environmental efficiency, and partnership in management facilities.

The Dynamic Management System for Sustainability in Sport Facilities Model (DM3S) applications in the case study of FC Porto facility show that these integrated approaches are useful to understand the level of performance and to identify the opportunities of improvement.

Nevertheless, the DM3S approach and sustainable search challenge facilities must have broader view and information that in some cases is no usual and easy to obtain. Also, will be essential balance life cycle environmental performance with social and costs.

**Table 8.7** Check sustainability football stadiums, Portuguese versus international

| Check sustainability   | Portuguese | International benchmark cases |
|--|------------|-------------------------------|
| 1. Sustainability is not yet a very present issue in stadium management in general   | Yes        | Yes                           |
| 2. When the subject of Sustainability in Stadium Management is present, the major driver for this purpose is usually the municipalities when they are shareholders of the facility | Less       | Yes                           |
| 3. Making a program for the sustainable management of a stadium is possible and can bring such added value to the facility as to the stakeholders                                  | Less       | Yes                           |
| 4. When measures for sustainability are foreseen as soon as the project is completed, it becomes easier to execute and operate   | Yes        | Yes                           |
| 5. The stadiums are a great stage of events that can be an example to change mentalities   | Yes        | Yes                           |
| 6. The sustainable management of an installation is only possible in close collaboration with the management of other infrastructures or facilities                                | Less       | Yes                           |
| 7. Small measures to implement their proper dissemination can lead to the change of mentalities  | Less       | Yes                           |
| 8. The awareness that a sustainable management of an installation can promote cost reduction and increase of profits   | Less       | Yes                           |
| 9. It is important that football stadiums are not only focused on the football business but are multipurpose venues for event dynamics   | No         | Yes                           |
| 10. Social responsibility is a very relevant aspect of these facilities and football teams that use them   | Yes        | Yes                           |
| 11. Any employee of an installation must be informed and be part of the management for sustainability  | No         | Yes                           |
| 12. The dissemination of information is an important factor for the success of a management for sustainability   | Less       | Yes                           |
| 13. The application of measures for sustainability in resources is still very focused on energy since it is the most relevant invoice in the operation                             | Yes        | Yes                           |
| 14. There is still little connection with the scientific and higher education system in order to develop innovation projects for the sustainability of these facilities            | Yes        | Yes                           |
| Others   | Security   | Partnerships                  |

## 8.6 Conclusion

Sustainability is beginning to be in agenda of sport facilities. The perspective is changing from green to sustainability in an environmental awakening that has been assumed also by FIFA and UEFA with specific policy and guidelines.

Key football organizations like FIFA and UEFA have defined sustainability as a key to promote guidelines and practice to show that sport facilities sustainability management must involve different areas like water, waste, energy, and transport.

Some clubs and football facilities that search to improve environmental performance begin with measures that could also improve environmental and economic (operational costs) or environmental management system like ISO 14001 or EMAS.

Due to the multidimensional impact and a lack of understanding, it is important to use tools which identify the status and potential improvement of sustainable management in sport facilities. The proposed approach is called Dynamic Management System for Sustainability in Sport Facilities and finally concludes that:

- Its applicability is possible and recommended to support the development of the concept of Sustainability in Stadium Management.
- Its dissemination will be relevant in order to promote awareness of Sustainability in the Management of Football Stadiums.
- This model should also have a review period (e.g., no more than 5 years), being updated with information on its application, as well as new concepts, techniques, and technologies updates.

The operational analysis done for FC Porto Stadium shows good energy performance and low mobility performance. These measures are the base to implement a more sustainable model and specific measures like the improvement of public transportations.

The three European stadiums visited outside Portugal, which were built before (Arena Amsterdam) and after the Euro 2004 stadiums (Letzigrund Stadium, Zurich Stadium, and Wroclaw Stadium), and also Portuguese stadiums have some environmental practices and improvements that show an evolution from green to sustainable measures.

The application at DM3S strategical level in simplified analysis is based on 14 questions allowing to understand that the newest stadiums begin to search more demanding level of sustainable practices.

In conclusion, sustainability in sport management facilities is possible at any stage of their life cycle, which can be anything from a small change to the application of a management system for this purpose.

Sport facilities management can have better environmental, economic, and social if adopt an integrated approach like DM3S or similar. As a sub-result, eventually the strong public profile of sport stadium could be an example, a driver or even a seed improve city of sustainable policy and local development.

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# Chapter 9

## Designing Inquiries into the Financial Sustainability of Local Associations: The Case of Portuguese Amateur Soccer Teams

Paulo Mourão and João Gomes

**Abstract** We studied the amateur soccer teams of Portugal. Using a sample composed by the clubs with teams playing in the major leagues of each regional association ('Associações Distritais'), we observed for the first time in the literature a significant number of clubs and teams. These teams responded to a proper survey which enabled us to study the financial sustainability of this important dimension for the youth and amateur sports.

**Keywords** Financial sustainability • Financial dynamics • Human resources dimension • Amateur soccer teams • Fiscal obligation

### 9.1 Introduction

Most not-for-profit European organizations are local associations. This is the case in Portugal too. And within this group, we can find a significant subgroup of local associations mainly focused on cultural and sporting activities. Their profile has not yet been reasonably characterized nor their strategies of sustainability suitably analyzed. Therefore, in this chapter, we aim to carry out an inquiry for characterizing a representative sample of these local associations and to study their strategies of sustainability.

For the purpose of the Chapter, we will review the literature on local associations, not-for-profit sporting teams, and amateur soccer organizations. As these

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amateur soccer organizations tend to participate in municipal or regional championships/leagues, we will also discuss these amateur leagues.

Then, we will discuss convenient sample methods to guarantee a good representative share of the local associations. As we carried out a previous inquiry relating to Portuguese amateur soccer teams, we are going to use this case study and the observed methodological stages for a practical guide.

We will be able to relate and explain appropriate statistical tools, namely, descriptive statistics, Pearson correlation matrices, or independence tests between two variables. These tools are essential for further developments that we also anticipate in our Chapter, such as the use of probit/logit ordered regressions for explaining dependent variables like those derived from Likert scales.

Finally, we will also explore how three major dimensions of sustainability for not-for-profit organizations are closely related: financial sustainability, institutional/environmental sustainability, and human/stakeholder sustainability. These dimensions will also be examined in the special cases of local associations and amateur teams.

## **9.2 Reviewing the Literature: Amateur Teams as Survivors**

### ***9.2.1 Amateur Soccer Teams: From Social Goals to Survival in a Competitive Economy***

The relevance of associations for sports development is a well-established dimension in the literature (Esteves 1975). This importance comes from the evidence that most professional teams began being constituted as informal or amateur organizations (assuming legal forms of associations of citizens without profitable intent as the main goal); equally important is the evidence that most soccer matches organized weekly by regional/local organizing entities involve teams related to associations (Albuquerque 2007). Carvalho (1994) even recognizes that it is hardly conceivable to think about the Olympic modalities of today without the work of schools and citizens' collectivities (work which has often been invisible in the statistics and in the proper valuation by governments and societies).

Most of these associations share the concern of providing sports exhibitions but also sports infrastructure for citizens and communities (Araújo 1984). In fact, Carvalho (1997) recognizes that the presence of local sports teams managed by associations composed of citizens is responsible for a large share of the cultural and sporting activities in many municipalities of the most developed economies in the world.

As stated, social recognition of the sports associations in local or regional economies has been low. Despite this low recognition, sports associations have a complex set of social goals (Carvalho 2001). These goals involve the construction of communication links and cooperation channels with other organizations of society, the development of a culture of responsibility among participating citizens, the training of directors toward fiscal/legal obligations, the management of human resources, and bargaining strategies with levels of government.



### 9.2.2 *Three Challenges for the Sustainability of Amateur Soccer Teams*

Amateur soccer teams tend to have three major Challenges for their own sustainability (Sousa 1988): the human dimension, institutional vitality, and financial dynamics. Let us review each one of these dynamics in detail.

The human dimension is an essential dynamic for nonprofit organizations, as amateur soccer teams are. The “human structure” is composed of three major groups: associated citizens, sports players, and hired personnel (Sousa 1988). The associated citizens are those who entered into the organization from a volunteer perspective, keeping the right to exit the organization at any time. Depending on each association, there are certain obligations to be respected, namely, loyalty, the yearly payment of a fee, participation in general assemblies, and the support of the organization/team’s activities. The second dynamic regards the sports players, classifiable in terms of age, payment, and level of professionalization (Sousa 1988). Finally, the third dynamic is related to hired personnel: sports managers, coaches, clinical staff (physicians, physiotherapists, nurses, etc.), and administrative staff.

Institutional vitality is a reminder that no organization survives alone. Therefore, even amateur soccer teams have to continually renew their partnerships with other teams, other nonprofit organizations, with public entities (municipalities and national governments), and with the evolving entrepreneurial sector (Mourao and Enes 2016). From these connections, there appear often opportunities for sharing challenges and solutions, as well as common threats and common replies, which can significantly improve the likelihood of joint survival and of joint transformation.

Finally, as important as the previous two dimensions, we have the third dynamic – financial flows of the entity. Following Mourao and Enes (2016) and Heinemann (1988), the financial dynamic can be thought of as a triangle, with the three sides representing cash flows, fiscal costs, and indebtedness expenses.

Seeking positive cash flows, time after time, is a hard task for most amateur soccer teams. Besides managing the wages bill and costs related to the transport of the team(s), along with paying for the repair and maintenance of the infrastructure and expenses of electricity and water consumption and diverse supplies, amateur soccer teams have to properly manage revenues, such as ticket revenues, fees, grants from the government, (local/regional) sponsorships, and donations (Heinemann 1988).

Additionally, amateur soccer teams have obligations to governments, namely fiscal obligations. These teams have to pay contributions to the Social Security related to the hired personnel, indirect taxes from most non-sports activities (like coffee shops or newspapers shops), and sometimes direct taxes from the possession of rented properties (Coates and Humphreys 2003). Consequently, these teams need to save resources to pay their fiscal obligations in due time.

Finally, indebtedness costs may appear from past decisions taken by past Boards of Directors, especially those linked to costs of maintaining/repairing physical

infrastructure.<sup>1</sup> When there are these kinds of liabilities, amateur soccer teams have additional pressures to collect more substantial inflows in order to properly pay the interest from past debts and to mortgage the owed values (Mourao 2012).

These three dimensions are structural dimensions for a nonprofit organization/amateur soccer team. They are especially relevant for an amateur soccer team's sustainability. However, until now and as far as we know, there has not been any serious attempt to properly evaluate the status of Portuguese amateur soccer teams in terms of sustainability. There is already a substantial body of work focused on the universe of Portuguese professional soccer teams (e.g., Mourao 2012, presented some of them), but the reality of amateur soccer teams has not received the same attention.

To fill this gap, a survey was constructed for distribution to all amateur soccer teams playing in the most demanding amateur regional leagues in Portugal (i.e., in the leagues providing the chance of the champion team being promoted to national competition – the 3rd Division, organized by the Portuguese Federation of Soccer). The rationale for this option – for distributing the survey to all amateur teams playing in the “Premier League” of each administrative district – is simple: Portugal has 21 administrative districts, and the clubs headquartered in each district compose the related regional association of soccer teams. So, there are 21 regional amateur Premier Leagues (*Campeonatos Distritais*) of senior male players.

These regional leagues are very different among themselves. Some regional associations have three or four championships/leagues in a hierarchical order (meaning that the highest-placed teams at the end of the competition tend to have the right to play in a higher league in the following season and, conversely, the worst-placed teams are relegated to the immediately lower league). However, when checking all these regional championships, we observe that all have in common at least one league. For instance, in the surveyed season of 2012/2013, the region/district of Castelo Branco had only one (senior males) league; in the opposite case, the regions of Lisbon and Oporto had five (senior males) leagues each.

### ***9.2.3 Toward an Empirical Analysis of the Triangular Sustainability***

To study the sustainability of Portuguese amateur soccer teams, and following the literature (Mourao and Enes 2016; Elkington 1998; Sousa et al. 2012), we have to analyze the financial sustainability, the institutional sustainability, and the agents/stakeholders' sustainability. Let us recall the sub-structures of each of these.

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<sup>1</sup>In associations or in amateur soccer teams, the peoples' willingness is the major asset of each organization. However, to enhance this capacity, infrastructure and other tangible assets are necessary. The most common of these tangible assets are soccer fields, gymnasiums, pavilions, pools, coffee shops, and owned equipment.

Financial sustainability is composed of three vectors: the sustainability of cash flows (revenues over expenses), the sustainability of fiscal obligations, and the sustainability of indebtedness. Therefore, it is relevant to observe for each team a complex set of variables (Wladimir 1988; Bryson et al. 2001; Valentinov 2008) for the dimension of financial sustainability: the size of each team’s revenues and expenditures, the difference between each team’s revenues and expenditures, the fulfillment of fiscal obligations or the need to negotiate enlargements of the period of payment, the presence of bank loans, the periodicity of the payment of bank interest, and the weight of the liabilities (considering the different terms) on the global size of assets.

Regarding institutional sustainability, it will be important to analyze the network of partnerships in which the amateur soccer team acts (Matos 2001). Besides the existence of signed protocols with other institutions (like municipalities, universities, or other collectivities), it is important to check the existence of practices of sharing infrastructure, vehicles, or technical staff with other teams/nonprofit entities.

Related to the third challenge – the sustainability of human resources – it is relevant to investigate the renewal of directors, sports players, and associated citizens (Matos 2001), avoiding a certain trend of “eternization” of some founding members/directors, or a certain homogeneity of the associated citizens (in terms of age, gender, education level, or income level). It is also important to observe the existence of efforts toward the contribution of more skilled managers (Carvalho 1997).

The original questions/questionnaires (in Portuguese) are in Gomes (2014). Their synthetic forms are in Table 9.1 (below).

## 9.3 Empirical Sections

### 9.3.1 *Universe, Sample, Questionnaire, and Survey*

In Portugal, there are 21 Regional Associations of Soccer (*Associações Distritais de Futebol*). These Regional Associations have delegated powers from the Portuguese Federation of Soccer and, given their autonomy, they organize regional leagues of various ages since players range from 5 to 6 years of age to seniors (aged 20 or more) to veterans (aged 35 or more years). The leagues are also separated by gender (male leagues and female leagues). As already introduced, there are regional associations with various leagues of senior male players, with the possibility of promotion/relegation across the leagues.

Therefore, our universe should ideally be composed by all the amateur soccer teams in Portugal, independent of the age of players, gender, or the sports relevance of the league. However, given the high heterogeneity across the country, we have to work with sampling techniques (Bell and Thorpe 2013). In order to have an expected relatively high percentage of respondents, and given the availability of contacts, it was decided to construct the sample of amateur soccer teams by considering the cases of teams of senior male players in the highest league organized by each

**Table 9.1** Questions in the questionnaire and distribution of the responses

| Question #<br>[abbreviated form]   | Distribution of responses  |
|--|--|
| #1<br>[Regional Association of the respondent]                             | Algarve (9%); Angra do Heroísmo (1%); Aveiro (8%); Beja (2.6%); Braga (5%); Bragança (2.6%); Castelo Branco (1%); Coimbra (5%); Évora (6%); Guarda (2.6%); Horta (2.6%); Leiria (2.6%); Lisboa (6%); Madeira (1%); Ponta Delgada (4%); Portalegre (4%); Porto (4%); Santarém (5%); Setúbal (12%) Viana do Castelo (4%); Viseu (8%)                         |
| #2<br>[Starting year of the club/team]                                     | From 1900 to 1929 (19%); From 1930 to 1939 (12%); From 1940 to 1949 (23%); From 1950 to 1959 (5%); From 1960 to 1969 (12%); From 1970 to 1979 (17%); From 1980 to 1989 (6%); From 1990 to 1999 (3%); From 2000 onward (4%)   |
| #3<br>[Major goal of the club]   | Sports (47%); Sports, Cultural and Philanthropic Activities (47%); Sports and Others (5%)  |
| #4<br>[Existence of a law department in the club]                          | Yes (55%); no (45%)  |
| #5<br>[if #4 was “Yes,“ the person responsible for the legal issues is...] | Hired Lawyer (56%); President of the Club (42%); Director of Law Department (1%); Others (1%)  |
| #6<br>[The club is recognized as an Entity of Public Utility.]             | Yes ( 62%); no (38%)   |
| #7<br>[Existence of regional titles]                                       | Yes (83%); No ( 17%)   |
| #8<br>[Existence of national titles]                                       | Yes (15%); No (85%)  |
| #9<br>[Current standing in the Regional League]                            | 1st to 4th (36%); 5th to 8th (27%); 9th to 12th (19%); 13th to 16th (13%); 17th to 18th (4%); below 18th (1%).   |
| #10<br>[Number of affiliated members <i>Sócios</i> ]                       | Below 100 (6%); From 101 to 500 (62%); From 501 to 1000 (19%); From 1001 to 1500 (5%); From 1501 to 2000 (5%); From 2001 to 2500 (3%)  |
| #11<br>[Divisions in which the club has teams playing]                     | <i>Under 7 years</i> (Male – 55%; Female – 4%); <i>Under 9</i> (Male – 59%; Female – 4%); <i>Under 11</i> (Male – 58%; Female – 4%); <i>Under 13</i> (Male – 67%; Female – 4%); <i>Under 15</i> (Male – 65%; Female – 3%); <i>Under 17</i> (Male – 53%; Female – 4%); <i>Under 19</i> (Male – 55%; Female – 8%); <i>Seniors</i> (Male – 82%; Female – 12%) |
| #12<br>[Number of federated athletes]                                      | 0–30 (10%); 31–60 (13%); 61–90 (17%); More than 90 (60%)   |
| #13<br>[Number of non-federated athletes]                                  | 0–30 (5%); 31–60 (10%); 61–90 (12%); More than 90 (73%)  |

(continued)

**Table 9.1** (continued)

| Question #<br>[abbreviated form]   | Distribution of responses   |
|--|---|
| #14<br>[Number of paid workers]  | 0–5 (56%); 6–9 (15%); 10–15 (10%); 16–20 (5%); More than 20 (13%)   |
| #15<br>[Number of non-paid workers]  | 0–5 (10%); 6–9 (15%); 10–15 (27%); 16–20 (22%); More than 20 (26%)  |
| #16<br>[Number of male – paid or non-paid – workers]   | 0–10 (27%); 11–20 (36%); More than 20 (37%)   |
| #17<br>[Number of female – paid or non-paid – workers]   | 0–10 (96%); 11–20 (4%)  |
| #18<br>[Dominance of Male/<br>Female members in the<br>Social Bodies of the club]                    | Male (99%); Female (1%)   |
| #19<br>[Most frequent School<br>level in the members of the<br>Social Bodies]                        | Primary School (19%); High School (73%); University degree (6%)   |
| #20<br>[Most frequent occupation<br>in the members of the<br>Social Bodies]                          | Unemployed (3%); Retired/Pensioner (1%); Dependent Worker (79%); Independent worker (14%); Student (3%)                                   |
| #21<br>[Number of years in office<br>of the current president of<br>the club]                        | 1 year (21%); 2 years (26%); 3 years (8%); 4 or more years (46%)  |
| #22<br>[Owning status of the<br>club’s headquarters]   | Club’s own (47%); Temporarily granted without expenses (17%); Permanently granted without expenses (19%); Rented place (13%); Others (4%) |
| #23<br>[Infrastructure in the club]  | Coffee shop/Bar (69%); Gymnasium (12%); Pavilion (29%); Soccer field (92%); Others (15%)  |
| #24<br>[The most recent year in<br>which club’s financial<br>reports were discussed and<br>voted on] | 2012 (72%); 2011 (10%); 2010 (4%); 2009 (3%); Others (12%)  |
| #25<br>[In 2012, the operational<br>results of the club were...]                                     | Positive (55%); Negative (24%); Null (13%); Not yet voted (8%)  |
| #26<br>[If #25 was “Positive,”<br>which was the value?]  | From 0 to 10,000€ (95%); From 10,001 to 20,000€ (2%); From 20,001 to 30,000€ (1%); From 30,001 to 40,000€ (1%); More than 40,000€ (1%)    |
| #27<br>[If #25 was “Negative,”<br>which was the value?]  | From 0 to 10,000€ (72%); From 20,001 to 30,000€ (8%); More than 40,000€ (20%)   |

(continued)

**Table 9.1** (continued)

| Question #<br>[abbreviated form]  | Distribution of responses   |
|---|---|
| #28<br>[3 major sources of revenues]  | Municipal grants (76%); Parish grants (33%); Government grants (6%); Publicity (38%); Affiliated members' fees (47%); Tickets revenues (23%); Bar (41%); Fundraising (3%); Donations (35%); Others (13%)  |
| #29<br>[Value of the 3 major sources of revenues]   | 0 to 2,000€ (3%); 2,001 to 4,000€ (10%); 4,001 to 6,000€ (6%); 6,001 to 8,000€ (6%); 8,001 to 10,000€ (12%); Higher than 10,000€ (63%).   |
| #30<br>[Club's total revenues]  | 0 to 10,000€ (14%); 10,001 to 20,000€ (17%); 20,001 to 40,000€ (27%); 40,001 to 60,000€ (21%); Higher than 60,000€ (22%)  |
| #31<br>[3 major sources of expenses]  | Wages of sports players and managers (51%); Employees' wages (18%); Maintenance of infrastructure (37%); Rents (3%); Transport (45%); Equipment (47%); Taxes (5%); Insurance costs (18%); Players' register (85%); Others (10%)   |
| #32<br>[Value of the 3 major sources of expenses]   | 0 to 2,500€ (3%); 2,501 to 5,000€ (10%); 5,001 to 7,500€ (9%); 7,501 to 10,000€ (10%); Higher than 10,000€ (68%)  |
| #33<br>[Club's total expenses]  | 0 to 10,000€ (6%); 10,001 to 20,000€ (14%); 20,001 to 25,000€ (4%); 25,001 to 30,000€ (6%); 30,001 to 35,000€ (6%); 35,001 to 40,000€ (10%); Higher than 40,000€ (53%)  |
| #34<br>[Existence of loans to be paid]  | Yes (28%); No (72%)   |
| #35<br>[Organized accounts]   | Yes (73%); No (27%)   |
| #36<br>[Existence of a Plan of Activities and Budget, yearly voted]                         | Yes (87%); No (13%)   |
| #37<br>[If #36 "yes," what is the period ruling of the Plan of Activities and Budget?]      | Civil year (19%); Sports season (69%)   |
| #38<br>[Does the club pay VAT and into the Social Security?]                                | Yes (68%); No (32%)   |
| #39.1–#39.2<br>[Status of club's tangible assets: from 1 "Very unsatisfactory" to 4 "Good"] | Infrastructure (1 = 9%; 2 = 19%; 3 = 35%; 4 = 37%); Equipment (1 = 4%; 2 = 26%; 3 = 47%; 4 = 23%); Furniture and Electronic devices (1 = 6%; 2 = 32%; 3 = 54%; 4 = 8%).<br>Quality of Administrative Human Resources (1 = 8%; 2 = 33%; 3 = 51%; 4 = 8%);<br>Coffee shop / Bar (1 = 15%; 2 = 18%; 3 = 55%; 4 = 12%);<br>Others (1 = 14%; 2 = 28%; 3 = 53%; 4 = 5%) |

Note: "Social Bodies" refers to the Board of the General Assembly (usually, three members: President, Vice-President, and Secretary), Directors' Board (with a varying number of members, among them President, one or more Vice-Presidents, Secretary, Treasurer, and some Vowels), and the Fiscal Council (with usually three members: President, Vice-President, and Secretary)

regional association. This sample was identified for the season 2012/2013 (period in which this study was initiated, first motivated by the development of the Gomes thesis 2014).

The use of questionnaires is justified for the intention of collecting primary data from an enlarged sample of respondents with regard to social, professional, economic, or idiosyncratic characteristics (Yanow and Schwartz-Shea 2006). In the case of soccer teams (independent of being either amateur or professional), there are also motivations of data availability and of data divulgation. Regarding data availability, it is always difficult to find a convenient number of clubs with detailed reports regarding their sports and financial dimensions. This difficulty is even more evident in the case of amateur teams/clubs. The problem of data divulgation is also relevant. Even if there is respect for the yearly approval of accounts, budgets, and activities, the clubs keep their right to preserve these reports as private documents, only accessible to the affiliated members or to legal authorities. For bypassing these two difficulties (data availability and data divulgation), it is also recommended to use questionnaires, which have been found to be a tool of compromise between the objectives of researchers and those of data owners (Hess et al. 2002). Additionally, as it is intended to test theoretical hypotheses and to analyze statistical correlations, the survey based on a questionnaire is widely suggested (Quivy and Campenhoudt 2008).

For the distribution of the questionnaires, we utilized the electronic platform *Google Docs*. Given the national dispersion of the surveyed teams, combined with the restriction of available time, it was preferred to use the electronic platform *Google Docs*, as suggested by Nulty (2008).<sup>2</sup> Following Alves (2006) and because of the novelty of the topic – the sustainability of Portuguese amateur soccer teams – it was advised to run a pre-survey.

In this pre-survey, two teams were randomly chosen for each regional association of soccer. Of the 44 teams targeted for response in this pre-survey, we got replies from 10. These 10 questionnaires were then examined in terms of the variability of the answers to each question and their statistical significance. We observed that the answers were statistically heterogeneous and so all the questions in the pre-survey were kept in the final questionnaire to be distributed to the entire sample of 312 teams. However, after trying to collect the contact information for all 312 teams, we only received valid/active emails for 217 teams.

The questionnaire was distributed in the period between April of 2013 and January of 2014. After several reminders, we were able to have the responses from 78 respondent teams (which provided a mean sample error of 9.6%). Although we have not asked a precise identification of the people who were responding, we can

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<sup>2</sup>For a wider discussion about the weaknesses and potential of questionnaires responded to online, we suggest Nulty (2008). Generally, the weaknesses assume three dimensions: threat of devaluation by the respondent, minimal interaction with the inquirer, and pressure from “digital time.” Conversely, questionnaires responded to online have three major strengths: minimization of total costs of the survey, enlarged expected range of respondents, and abbreviated time for collecting final data.

ensure that a significant and large proportion of the people responding were members of the Board of Directors of each team (mostly, secretaries or even the presidents, who are the people able to open the official mail of the clubs).

### 9.3.2 *Results: Describing and Discussing*

Table 9.1 exhibits the distribution of the frequencies of the responses received for each question in the questionnaire. More details are available under request.

Let us begin with the responses related to the sustainability of human resources.

We observe that 62% of the respondent teams (i.e., 48 teams) have affiliated members (in Portuguese, *sócios*) numbering in the range between 101 and 500, 19% of the teams have members numbering between 501 and 1000, and 6% of the teams have 100 or fewer members.

Only half of the clubs have (male) teams participating in the youth divisions, which reveals a double challenge: difficulties in joining young athletes interested in playing for the clubs (sometimes related to the low density of the places around the club) and significant restrictions of resources (leading to the concentration of efforts toward the participation of a few of competitive teams in a certain number of divisions). There is also a significant gap between male and female teams – only a very low number of clubs (4%) have female teams.

Related to the number of paid workers, most of the teams (56%) recognize the existence of a number of workers less than or equal to 5 employees. Some 15% of the teams employ between 6 and 9 persons, and 13% of the teams have more than 20 workers. However, 49% of the teams assume the presence of a number of volunteers working for the team, between 10 and 20 people. A total of 59% of the teams evaluate their quality of human resources as “satisfactory” or “good.”

There is a statistically significant dominance of male members in the governing groups (known as Social Bodies) of the Portuguese amateur teams. The most common school level for members of the Social Bodies is “High School” (73%), and 79% of the members in the Social Bodies tend to be dependent workers. A relevant challenge comes from the “eternization” of the presidents of the clubs: responses indicated that for almost half of the clubs (46%), the current president has had held this function for more than 4 years.

Two thirds (66%) of the clubs have the headquarters totally owned by the club or permanently granted without any charge.

On the specific dimension of financial sustainability, some results deserve a proper highlighting. For instance, 55% of the surveyed clubs reported positive financial outcomes for the previous year. Of the entities assuming positive outcomes, 49% recognized that the positive balance had not exceeded 10,000 euros; 18% of teams had losses less than 10,000 euros.

Most of the teams’ revenues were reported as coming from municipal grants (76%), fees (47%), and parishes’ grants (33%). It also deserves to be noted that only the teams of the Autonomous Regions of the Azores and Madeira identified the option “governmental subsidies” as a source of revenues. Almost two-thirds of the



teams (63%) responded that their yearly revenues attributed to the three most generous sources surpassed 10,000 euros; 70% of the teams responded that yearly total revenues were valued at more than 20,000 euros.

The most expensive items for Portuguese amateur soccer teams have been the costs of players' official registrations in competition (85%), players' and managers' wages (51%), equipment (47%), transport (45%), and insurance costs (18%). Of the teams that responded, 53% said that their total expenses came to more than 40,000 euros and 68% of the teams recognized that the top three most expensive expenses surpassed a yearly value of 10,000 euros; 28% of the Portuguese amateur soccer teams confessed they still have bank loans to be paid.

Regarding satisfaction about physical resources/infrastructure, 9% responded "very unsatisfactory," 19% responded "unsatisfactory," 35% responded "satisfactory," and 37% "good." The sports equipment is considered "satisfactory" or "good" by 70% of the respondents. The quality of furniture and of electronic devices is also evaluated as "satisfactory" or "good" for 62% of the respondents. Similarly, 67%, the quality of the coffee shops of the amateur soccer clubs is perceived as "satisfactory" or "good" by respondents.

Finally, we are going to briefly describe the most significant results related to institutional sustainability. We observed that 62% of the clubs are recognized as Entities of Public Utility, a status enabling benefits in terms of tax avoidance and in terms of eligibility for public grants (Decree-Law 391/2007). Some 49% of the clubs have their own headquarters in places primarily owned by different entities/persons, which reinforces the need for managing the relations between clubs and involving entities. It has also been observed that 68% of the clubs reveal that they pay VAT (mostly from the activities of the coffee shops and gyms) and into Social Security, which launches challenges for the tax schemes being adopted for enlarging the institutional net of partners for the Portuguese clubs (Matos 2001).

### 9.3.3 *Testing Empirical Hypotheses Upon Questionnaires*

The interest of the surveys is not just restricted to descriptive analysis, as was done in the previous sub-section. They also allow testing the (in)dependence of variables among other hypotheses and to estimate (empirical) models able to identify determinants for the distribution of the responses to major questions (Garbacz et al. 2016).

For the purpose of illustrating this potential, we introduce the following hypotheses extracted from the literature:

- i) The competitiveness of each team in regional/amateur competitions is independent of the competitiveness of the same team in national/professional competitions (Mourao 2012; Cima 2012).
- ii) Relatively successful amateur soccer teams tend to have a larger basis of affiliated members (Mourao 2012; Cima 2012).
- iii) The perception over the various dimensions of the team's assets is not independent (Carvalho 1994).

For testing these hypotheses, we are going to follow Laureano (2011: 114) and therefore we will run the Chi-square non-parametric test of independence of two variables/groups.

According to McHugh (2013), “the Chi-square statistic is a non-parametric (distribution free) tool designed to analyze group differences when the dependent variable is measured at a nominal level. Like all non-parametric statistics, the Chi-square is robust with respect to the distribution of the data.”

Regarding the first hypothesis to be tested (“The competitiveness of each team in regional/amateur competitions is independent of the competitiveness of the same team in national/professional competitions”), we got a  $p$ -value = 0.200 when testing the independence between the number of regional titles and the number of national titles for a team. Therefore, we agree with Mourao (2012) and Cima (2012) when they observed that it is very difficult for the most competitive regional/amateur soccer teams to maintain competitiveness when promoted to national/semi-professional/professional leagues.

For the second hypotheses, we tested the statistical linkage between the presence of past national titles and the number of affiliated members in a Portuguese amateur soccer team. We got a  $p$ -value of 0.020 and  $\chi^2 = 11,469$ . Therefore, in this hypothesis, we can accept the existence of dependence between the number of affiliated members (with the financial potentialities of fees’ dynamics) and the history of each team’s success in national competitions. These results follow Matos (2001), Mourao (2012), and Cima (2012).

Related to the third hypothesis, there are very interesting results. It was found that the satisfaction level regarding infrastructure is not independent of the satisfaction level of the equipment’s status ( $\chi^2 = 41,999$ ;  $p$ -value = 0.000). Additionally, the perception of the quality of the human resources has also been found associated with the perception of the quality of the material resources ( $\chi^2 = 19,035$ ;  $p$ -value = 0.007). The evaluation made on the sufficiency of administrative human resources is not independent of the evaluation made on the sufficiency of the other human resources of the club ( $\chi^2 = 37,622$ ;  $p$ -value = 0.000). These results generally are in line with Sousa (1988), Carvalho (1994), Homem (1997), and Paiva (2013), reinforcing the importance of maintaining all the resources of a team at high levels of quality and motivation.

## 9.4 Conclusions

This chapter has been focused on the potentialities of conducting questionnaires online for researching the under-analyzed reality of amateur soccer teams/clubs. Although there are many more amateur/non-professional/semi-professional teams than professional soccer teams, and although being especially responsible for the development of youth sports to a larger degree than professional teams are, amateur soccer clubs are only now capturing the attention of economists and social scientists in terms of empirical analysis.

These amateur clubs have been linked to the sector of nonprofit organizations and of local associations. Most of these clubs started their activities several decades ago and have faced different cycles of challenges. However, only now have the challenges of sustainability been attracting the attentions of academicians, who have been recognizing the importance of sustainable amateur clubs for local/regional economies and for youth sports' development.

Therefore, it was our intention to provide a set of methodological procedures toward the use of questionnaires as important tools for collecting information from amateur soccer teams. The focus of our questionnaire was the study of the sustainability of soccer teams, considering three major vectors: financial sustainability, stakeholders' sustainability, and institutional sustainability.

After a review of literature in which we detailed the major dimensions behind each vector, we constructed a questionnaire using two stages – a pre-survey and the definitive survey. The survey was distributed to all the Portuguese soccer teams playing in the Premier Leagues organized by each regional association of soccer teams. After properly discussing the advantages and disadvantages of several methods of distribution, we preferred to use the electronic distribution of Google Docs. We received responses from 78 teams, which resulted in a mean sample error of 9.6%.

We were presented with a highly detailed description of the sustainability of Portuguese amateur soccer teams and their clubs. Although clubs recognize the restricted resources that they have for supporting the major sport and social activities, the responses also revealed that most of them have some autonomy in terms of tangible assets. We also were informed that only a few of these teams have bank loans to be paid. However, the responses revealed serious challenges in terms of the sustainability/renewal of stakeholders, especially of the members of the Social Bodies. Finally, the most relevant source of revenues is recognized to come from public grants (mainly, municipal subsidies).

After a descriptive section, we also tested – principally for illustrative purposes – some hypotheses. We were not able to refuse the hypothesis of independence between the existence of regional titles and the presence of national titles. However, we were able to refuse the hypothesis of independence between the existence of national titles and a larger number of affiliated members, and the hypothesis of independence between the perception of the quality of each club's infrastructure and its equipment.

There are three major challenges for us derived from this research. First, it will be interesting to produce longitudinal studies, collecting data from the same clubs observed at different seasons. This opportunity will give us additional information in terms of the dynamics of each club's sustainability. The second challenge comes from the opportunity of, with the longitudinal data, running panel data logit/probit regressions or ordered logit/probit regressions (depending on the nature of the variables chosen to be treated as dependent ones). These dependent variables can be questions regarding an overall perception of the financial health of a club, for instance, or the overall perception of the quality of a club's departments

(Garbacz et al.2016). Finally, it will also be relevant to observe differences across the responses from various members of the Social Bodies of each club, which would generate additional insights into the heterogeneity of perceptions.

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# Chapter 10

## Economic and Financial Analysis of Bankruptcy of Football Teams

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**Abstract** This chapter aims to show a different point of view on one of the most famous sports in the world: football. The objective is to present a perspective that not many people get to see or even know about, because it is not about which player scores more goals or which team gets more titles. The approach that we want to show is the financial and economic state of each team, meaning, for example, why can some teams invest a large amount of money in players and facilities and other teams cannot? Why are there teams that relegate their division to a lower one? Is it just because they do not afford their goals or is there something else? What is there behind these sports goals? Is football just a game? What economic and financial situation are Spanish football teams in? To give an answer to all of those questions, we have studied the CAMEL variables and ratios of 13 Spanish football corporations throughout the 2003–2012 period. The results show that the majority of the clubs cannot control their financial status, sometimes due to unrealistic goals and other times due to lack of management and financial control. It leads to an economic downturn which is also supported by the wrong distribution of TV rights. However, as it can be observed in this chapter, there is some good news for Spanish Football Teams. As this chapter shows, it is possible to control the financial status setting some limits and controlling the financial rates. Also, it is important to highlight that the Professional Football League is changing the distribution of TV rights, which will be distributed in a more equal way, which will reduce the big difference among incomes between the first positioned teams in the table and the last positioned teams. Also, UEFA is interested in this issue due to the high level of clubs that find themselves in a debt-ridden situation and will penalize the teams that did not accomplish their financial requirement, which can be read in this chapter.

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**Keywords** Football • Corporations • Bankruptcy • CAMEL • Arrangement with creditors • Spain

## 10.1 Introduction

The economic crisis that began in the summer of 2007 is affecting most Spanish sectors. However, the football business seems to be unaffected by it, with high activity in most stadiums, and continuous consumption of the whole “product” related to football. Despite this, most clubs face large debts with the State, being Real Madrid the club with the highest debt, which amounts to 602 million euros.

Consequently and despite appearances, questions such as the following arise: Does the crisis affect the football world? How has it impacted? Can the club debt be reduced? How is this debt generated? How can it be reduced? Is it sustainable?

The present research tries to answer all these questions, besides showing a different vision of Spanish football, by studying the economic and financial perspective. For this purpose, five Sports Corporations (Real Sociedad, Villarreal, Sevilla, Celta de Vigo, Real Sporting de Gijón) have been analyzed by using the “SABI” database during the 2003–2012 period.

## 10.2 Theoretical Framework

The “Sports Law” (Law 10/1990, of 15 October), which regulates the legal framework in which sports practice and professional sports activities<sup>1</sup> take place, establishes a model of legal and economic responsibility for these sports activities by converting professional sports clubs into Sports Corporations (SC), with the aim of making their control easier and more organized. However, not all clubs are required to become SC, since the Seventh Additional Provision of the Law considers the possibility for all clubs participating in professional football competitions, with a positive equity balance in all audits collected from the 1985–1986 season commissioned by the Professional Football League (LNFP), to retain their legal structure. In our league, only four clubs meet this requirement and therefore are not SC, which are Real Madrid, FC Barcelona, Athletic de Bilbao, and Atlético Osasuna Club.

The economic requirements for a club to participate in a professional competition established by the LNFP in its statutes and regulations are:

- Payment of the registration fee required by the league.
- To justify by documentary evidence of current payment of its fiscal obligations and commitments acquired with the Social Security.

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<sup>1</sup>The Sixth Additional Provision of Royal Decree 1251/1999 clarifies that currently professional competitions at state level are the First and Second Division A, in terms of football.

- Current payment to its players and coaches, the Royal Spanish Football Federation, the LNFP and SCs or clubs that are members of the LNFP.
- To submit an explanatory report of the economic resources of the SC or club and the composition of its Board of Directors.
- To attach a copy of the labor contracts.
- To submit an updated list of the SC shareholders.
- To submit the guarantee to the LNFP and if the club has an economic deficit from the previous season, it also has to submit a guarantee which would cover it.

The consequences that can be faced by clubs for failure to comply with these measures can become serious, for example, relegation or temporary or indefinite expulsion from competition.

Despite having these control measures by the LNFP and the Sports Council (Consejo Superior de Deportes, CSD), Spanish football went from 124.5 million euros of debt in 1985 to 3530 million euros in the 2011–2012 season (Gatius and Huch 2012).

One thing that can clearly show us the shadow of the financial and economic situation of Spanish football clubs is the fact that so far, 26 of our clubs have undergone a situation of arrangement with creditors, among which are ten clubs that belong or have belonged at some point to the First Division.

It should be added that this predisposition of Spanish clubs to enter bankruptcy proceedings until now was due to a particularity of our legislation, which allowed an entity in such a situation to retain its status even if it had debts with its players or other payment obligations with its creditors. This situation changed in 2012, after the entry into force of a modification of the legislation, whereby the clubs that comply with the insolvency law will not be exempt from complying with the sports rules that regulate competition and will therefore lose their category if they are subject to the insolvency law and do not meet the requirements established by the LFP to be able to take part in the competition.

But, what is an arrangement with creditors? And what is bankruptcy?

An arrangement with creditors is the legal procedure that is originated when a natural or legal person is in a situation of insolvency, in which it cannot cope with the totality of the payments that it owes. The arrangement with creditors covers situations of bankruptcy and suspension of payments. To enter into an arrangement with creditors, it is compulsory to have the documentation that shows this impossibility of paying off debts. The next steps are the appointment of a trustee by the court and to agree with the creditors on a new form of payment through rebates, fees, and other types of arrangements. An important aspect to consider when convening an arrangement with creditors is that the club maintains its administration.

However, insolvency or bankruptcy is the closure of a society, and what should follow this is the appointment of a trustee and the liquidation of its assets, that is, the disappearance of the club. This happens when some creditor files for bankruptcy of a debt and documents it, or when voluntarily a club goes bankrupt because it cannot pay its obligations.



According to Graveline and Kokalari (2008), when we refer to the bankruptcy of an entity, we must keep in mind three types of concepts: (1) to stop paying a debt, (2) to meet the conditions laid down in the current legislation on bankruptcy, and (3) to have an asset situation that leads to future failure.

Wheelock and Wilson (1995, 2000) give importance to business management and administration, since they maintain that managing or administering an enterprise inefficiently contributes to a great extent to its business failure.

Rubio (2008) and Correa et al. (2003) point out that an entity fails when it goes into technical bankruptcy, i.e., when it has negative net equity.

Argenti (1976) found a series of imperfections that lead companies to failure. This process begins with poor management, differences in the accounting system or poor adaptation to change, and continues with continued leverage as a consequence of businesses that do not provide profits or businesses that start off with debts, due to the burden they pose to the entrepreneur. Finally, in the third phase of this process, the problems begin to be reflected in the ratios (lack of liquidity, increased leverage, reduction of profit shares, etc.)

Beaver (1966) was the first to attempt to find the differences between successful and unsuccessful enterprises in the results of the ratios provided by the enterprises' financial statements. In order to do this, a univariate analysis was used, where each ratio became an independent classification procedure through the estimation of an optimal cut-off point, which enabled the differentiation of successful and unsuccessful enterprises. Only three ratios out of the initial 30 ratios of the Beaver study showed differentiating data and these are: cash flow/debts; net profit/total assets; and debts/total assets.

We must highlight some of the conclusions drawn by Beaver in his work:

1. Financial ratios are sensitive up to 5 year before failure.
2. There are certain accounting measures with greater predictive ability than others.
3. Certain symptoms in companies that end up being unsuccessful in the years prior to failure are detected, such as lower cash flow, lower net profits, higher debt, higher current liabilities, and lower current assets, among others.

Since the appearance of Ohlson (1980), the use of Logit Analysis in business crisis research began to be considered an alternative to Discriminant Analysis in the search for a predictive model that would improve the classification results between successful and unsuccessful enterprises.

The statistical techniques used required a prior differentiation of the two groups of companies in which it was intended to classify. The classification took place at a certain point in time for which the existence of failure was considered. Bankruptcy filing situations were mainly found, but in other cases other situations were taken. Laitinen (1993) was the first to consider that not all companies behave in the same way in terms of financial ratios before crisis, which allows him to consider the existence of different failure processes and, therefore, a different use of financial ratios. This technique allows to model dynamic aspects of the failure process and enables the study of companies that are at different failure stages. Precisely, Laitinen (2005)

**Table 10.1** Indicative financial ratios in the failure process stages

| Failure process stage        | Financial indicator   |
|------------------------------|---|
| Low profitability            | ROI; net profit/sales   |
| Low Cash Flow                | CF/sales; sales growth  |
| Increase in debt financing   | Owner's equity/total assets; CF/total debt                            |
| Increase in short-term debts | Owner's equity/total assets; financial assets/<br>current liabilities |
| Decrease in Financial Assets | Financial assets/current liabilities                                  |
| Failure                      |   |

Source: Laitinen (2005)

shows how the different financial variables (ratios) vary in significance as the process of failure evolves (Table 10.1).

Regardless of the problems that might be associated with the statistical technique used, with the selection of unsuccessful companies and with the consideration of failure as something continuous or static over time, the fact is that the variables that appeared as significant in the models and contributed to the power of classification of the companies must be considered as differentiators of the two types of companies: successful and unsuccessful. In this way, after the univariate analysis, is possible to confirm that:

- There are differences in the economic and financial structures of the companies that cease their operations and of those that remain in the market.
- These differences are neither stable nor generalizable given the failure processes that may occur between different companies.

However, it does seem possible to group these differences into a number of dimensions of business performance that are common in most studies: liquidity, indebtedness, profitability, productivity, solvency, financing activity, and structure.

Among the most used models is the analysis of the CAMEL variables (Capitalization, Assets, Management, Equity and Liquidity), which were introduced in 1979 by the regulators of the United States. According to Betz et al. (2014), the analysis of the CAMEL variables is used for the internal control of the company, since it evaluates the financial health of companies.

Scott (1981) points out that the variables that are analyzed in the predictive models of bankruptcy are every time chosen from the empirical results of other papers instead of being based on economic reasoning. For Tascón & Castaño (2012), this is due to the absence of a theoretical formal model on business failure.

There are related studies that analyze the qualitative variables, which do not appear in the reports presented by companies each year. On the basis of this, Argenti (1976) calls for the introduction of information that is related to business management, accounting systems, or manipulations that could have been made through the companies' financial statements.

Once bankruptcy and arrangements with creditors have been analyzed from a general point of view, it is possible to go on to study the variables and situations that refer to the football world in particular.

Regarding personnel expenses, Soriano (2009) states that if they make up more than 60% of the total operating income, the company must be cautious, because if in the near future these expenses are not modified, the club will contract more debt and will end in bankruptcy. However, FIFA sets the limit on 70% of operating income and from that figure onwards it will be responsible for the analysis of the club and send experts to analyze its economic and financial situation.

Cooper and Joyce (2013) state that in the football world the most important variables are television revenues, wages, fans (which refers to season tickets and tickets on match days), and the owner's money.

For Gatiús and Huch (2012), there are two ways of turning the football bankruptcy situation around:

1. Submitting an arrangement with creditors, negotiating a settlement, and reaching an agreement with the creditors to pay them in more years, reducing the debt or eliminating it altogether. This is a complicated way for many football clubs as it can lead to the inability to play European competitions.
2. Investing money in the business to have more resources and gain time to change the income statement so that it starts to generate an EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization) large enough to pay off debts or at least reduce them to a reasonable level. Within this second option, there are several alternatives to achieve the money: the first one is to increase the capital, that is, for a savior to appear, who will put money in exchange for keeping the club's shares; the other option is to sell the company's assets, which in the case of football clubs will not simply be the players, fields, or rights over future income.

### 10.3 Variables and Methodology Used

As mentioned above, the objective of this research is to show a different view of Spanish football, by studying the economic and financial perspective of a number of football clubs. For this purpose we have analyzed a series of ratios and variables that provide us with information on their economic situation. To calculate these ratios and variables, it was necessary to extract data from the balance sheet and the profit and loss account of each club from the 2003–2004 season with closure on July 1, 2004 until July 1 of the 2011–2012 season. The following items stand out:

- Current assets: also called working capital or liquid assets. They are assets that can be sold quickly at a predictable price and without excessive or counterproductive cost.
- Non-current assets: They are the assets that correspond to goods and services that the company does not convert into cash in a period of time of less than 1 year, i.e., they are assets that remain in the company for more than a financial year.
- Current liabilities: They are the payment obligations that the company has and are due in less than 1 year.

- Non-current liabilities: They are the company's debts, which are due in a period of more than 1 year.
- Owner's equity: The part of the liability that is not due to external financing but to the partners' contributions and the profits generated by the company. It is the sum of the capital stock, reserves, and the results of the financial year.
- EBITDA: The Ebitda is a financial indicator represented by the acronyms EBITDA, which stands for *Earnings Before Interest, Taxes, Depreciation, and Amortization*, that is, the gross operating profit calculated before deducing financial expenses.
- Operating income: This is the figure obtained after the deduction of expenses from the income generated by the company's normal operations.
- Amortization: Process of distribution over time of a lasting value. Amortizing is the financial process by which a debt is gradually extinguished through periodic payments, which may be the same or different.
- Personnel expenses: This item includes any payment to the employee: salary, social security, or any social expenditure.
- Financial and similar expenses: It refers to the interest rate on loans and similar expenses (Table 10.2).
- Working capital: it is that part of the current assets financed by non-current liabilities. It can be said that it is the current assets that we have after paying off short-term debt.
- RoA: (return on assets). This return is frequently used for the comparison of results of entities. This ratio results from dividing the results before taxes by the average total assets.
- RoE: This ratio is obtained by dividing the final results before taxes, or net profit (NP) by owner's equity, that is, capital and reserves. It shows the rate of profits on the accumulated capital.
- Leverage: It is the use of debt to buy assets, i.e., it is to take on a debt to invest in assets that are expected to give benefits.

**Table 10.2** Ratios and formulas used

| Name                               | Ratio  |
|------------------------------------|--|
| Working capital                    | Current assets/current liabilities                               |
| Short-term solvency                | Current assets/current liabilities                               |
| Short-term debt                    | Current liabilities/owner's equity                               |
| Long-term debt                     | Non-current liabilities/owner's equity                           |
| Total debt                         | Total liabilities/owner's equity                                 |
| Financial independence             | Owner's equity/total liabilities                                 |
| Total debt coverage through income | (Current liabilities + non-current liabilities)/operating income |
| Personnel expenses*                | Personnel expenses/operating income                              |
| Personnel expenses**               | (Personnel expenses + asset amortization)/operating income)      |

*Own source*

**Table 10.3** Formulas used to analyze CAMEL variables

| Variable       | Ratio  |
|----------------|--|
| Capitalization | Net equity/total assets  |
| Assets         | Current Assets/total assets  |
| Management     | (Personnel expenses + financial expenses + similar expenses + amortization provision)/financial income |
| Equity         | Net result/ROE   |
| Liquidity      | Current assets/current liabilities   |

*Own source*

- **Indebtedness:** It measures the proportion of debt with respect to owner's equity. As it is a relative measure, we understand that if the indebtedness is below 50%, it means that the company uses more of its own resources than resources loaned.
- **Debt coverage through income:** This ratio measures the ability of the company to pay off its debt through the income it earns.

Within the CAMEL variables the following are analyzed:

- **Capitalization:** These indicators try to measure the capacity that each institution has to absorb the losses of its assets, since any deterioration in the quality of the assets must be absorbed by net equity.
- **Assets:** This variable tells us how the company's assets are formed: the lower the percentage, the lower the number of current assets.
- **Management:** This indicator is associated with administrative efficiency by measuring the relationship between the sum of personnel costs and direct operating expenses, in relation to the assets that the club has available, considering the efficiency greater when the coefficient is lower or tends to decrease in time. It also measures the efficiency and capacity of the management to generate sufficient financial income, which adequately covers transformation costs, a situation that depends on the income-generating capacity of the assets.
- **Equity:** This indicator shows the amount of return on investment made by the club and also reports on the general behavior of the entity as a business activity. By comparing it with other clubs it enables to see if it is within a normal range or not.
- **Liquidity:** In economics, liquidity represents the quality of assets to be converted into immediate cash without significant loss of value. Therefore, the easier it is to convert an asset into money, it is said to have greater liquidity, which is a highly valued feature in the business world (Table 10.3).

## 10.4 Results

Once the methodology and variables used in the study have been shown, we proceed to analyze the results obtained from the analysis of the five selected SCs (Sevilla CF, Real Sociedad, Villarreal CF, RC Celta de Vigo y RC Sporting de Gijón). These SCs were selected because they were the only ones from which the balance sheet and profit and loss account from the 2003–2004 to 2011–2012 season could be obtained.

### **Sevilla CF**

The Sevilla club has a negative working capital during all the years of the study, which means that short-term debt exceeds short-term assets; in addition, liquidity during all these years is very low and does not exceed 1%. Finally, it should be added that the club does not have financial independence, since the total liabilities are the owner's equity each year.

The operating income does not cover the total debts for each year, which is a sign of indebtedness. Although the Sevilla club is one of the clubs with the lowest indebtedness of all those we have studied, it is true that in all the years of the study, short-term debt is higher than long-term debt.

We can see that the Andalusian club has positive owner's equity each year except in 2005 and 2004, where it has a negative sign, being therefore in what we call technical bankruptcy.

The Sevilla club did not have economic profitability except for 2009 and 2008 due to the results obtained in 2007 (UEFA champion) and the sale of players like Dani Alves, Keita, or Poulsen, where great profits were obtained.

As for leverage, we see how the Sevilla club has 3 years in which the sign is negative in 2004 and 2005 and this is because owner's equity was negative, and in 2006 it is due to the EBITDA having a negative sign.

As for personnel expenses, the Sevilla club would have had problems to play European competitions if the financial Fair Play of the UEFA had been applied, since in 2012 and 2009 it exceeded the 70% limit and in 2006, 2007, and 2011 it was in the limit with 68%, 69%, and 69%, respectively. If we apply the theory of Gay de Liebana (2012), the percentages would fluctuate between 126% and 75%.

When observing the CAMEL variables, we can say that the Sevilla club has a high liquidity that increases at the same time as the Assets, which have a higher percentage of current assets. Regarding Equity and Capitalization, we observe that they have a negative sign when the club is in technical bankruptcy, that is to say, when owner's equity is negative with respect to the Management variable, which has a high percentage being favored by the tendency of the Sevilla football club to have good sports seasons.

### **Real Sociedad**

The San Sebastian Club entered into an arrangement with creditors in 2008 for a debt of 41 million euros, of which 21 million corresponded to privileged creditors, among which were the Kutxa and the Provincial Council of Guipúzcoa. Another 14.4 million corresponded to ordinary creditors and 5.6 million more to subordinated creditors.

Most creditors accepted a 50% reduction and a 2-year grace period before starting to charge. The entity Txuriurdin was able to abandon the bankruptcy law in 2010.

The entry into the arrangement coincides with the relegation of the team to 2nd division in 2008 and the exit from the arrangement coincides with the Basque team's promotion to 1st division in 2010.

The working capital is negative throughout the study period, which indicates that the liquidity of the club during all these years has been zero, that it is not solvent in the short-term and that the club is not self-sufficient.

As for the club's indebtedness, we have observed that before entering into an arrangement with creditors the outstanding debt was a short-term debt and after the arrangement with creditors the long-term debt was higher than the short-term one.

In 2010 the club obtained a return of 5.95%, which coincides with the season in which it emerges from the arrangement with creditors: the personnel expenses are decreased from 112% to 80% of the operating income and it is promoted to first division, which leads to more income for the club.

Regarding leverage, we see how it has a negative sign in the years in which the club has negative owner's equity and/or negative EBITDA. In addition, we see that the Real Sociedad Club has a high level of leverage.

Regarding personnel expenses, it can clearly be seen that when the Real Sociedad Club was relegated to second division and maintained almost 100% of its team, personnel expenses increased from 61% in 2007 to 87% in 2008 in 2nd Division. This is due to the fact that the income obtained in 2nd division is much lower than that obtained in 1st division, especially from television revenues. The opposite case is seen when the club is promoted to 1st division in 2010, where the expenses are 80% and in 2011 already in 1st division the expenses fall to 67%.

Finally, the analysis of the CAMEL variables informs us that the club's liquidity is quite variable over the years and partly depends on the quantity of Assets of less than 1 year, i.e., current assets as explained above. In terms of Capitalization and Equity, we see that it has a negative sign in several years. This is due to the negative signs of both EBITDA and owner's equity in those years. However, when observing the Management variable, we can see that it has high values, although they have been reduced since emerging from the Royal Society for arrangement with creditors.

### **Villarreal**

The Villarreal club has a positive working capital during all the years under study, which shows that the club has short-term liquidity and solvency which was shown every year.

Regarding debt, it is worth mentioning the high debt of the club until 2010 and its subsequent decrease.

As for leverage, we note that the "yellow submarine" has fairly high leverage and in 2 years it has a negative sign (this is because in both the 2012 and 2007 season the EBITDA was negative).

Finally, we can say that within the CAMEL variables the Villarreal club has a high level of liquidity, being one of the best clubs that we have analyzed in terms of this variable. We can also observe that the Equity variable has a negative sign for several years. This is because the net operating result was negative in those years and thus causing the Equity variable to appear with a negative sign. We also see how the assets variable is slightly dominated by current assets in most of the years of the study. Regarding the Capitalization variable, we see that during the 2011 season a big difference arises with respect to the trend that was followed the previous years. This is due to the fact that in that year the equity grew thanks to a capital increase by the Villarreal club.

### **Celta de Vigo**

The Vigo Club entered into an agreement with creditors in the 2008 financial year with a 69 million euro debt, which must be completely paid off in 2020.

Once again and as in the case of Real Sociedad, the arrangement with creditors coincides with the year in which the club disputes the 2nd Division, being the reasons quite similar: the decline in income in 2nd Division and “having lived” beyond one’s possibilities during the years prior to the arrangement. Two years before the arrangement with creditors, the Celta club played the UEFA and for this it invested a lot of money in the team, and as it did not achieve the objectives for the following year (2007), the club was relegated and it was left with the players’ high salaries, who had been signed up for objectives totally different to those of ascending to the first division. This can be seen in the current assets that were 33,303,064 in 2008 and 5,732,689 in 2009. This decline is due to the fact that during 2009 before the closure, the Galician club sold many players, since it could not take care of their wages. Another clear symptom was in 2007, being in the first division, the percentage of personnel expenses/operational income was 74%, and a year later and already in 2nd division it was 174%.

In addition, the Celta club had technical bankruptcy in 2007, 2008, and 2012, as a result of negative equity.

The working capital is also negative and the club does not have short-term liquidity or solvency, nor financial independence.

Regarding the debt, it changed from 2010, when it started being based on long-term debt rather than short-term debt as it had been previously.

As for leverage, we can say that in 2005 this variable appears with a negative sign, which is due to the net operating results having a negative sign. This is clearly related to playing that season in the second division due to the decline of the 2004 season.

If we analyze personnel expenses, we see that they are exorbitant since the relegation to 2nd division, where these expenses do not fall from 107% in 2011 and a maximum of 174% in 2008 (just promoted), it also exceeds the limit imposed by UEFA in 2007, where the UEFA was played.

Finally, with respect to the CAMEL variables, we observed that the capitalization variable has negative percentages in several years. This is due to the fact that the club had negative owner’s equity during those seasons. However, it should be added that the equity variable is not only negative because the owner’s equity was negative during those seasons but also because the EBITDA was negative during the 2006 and 2004 seasons. On the other hand, we can highlight that the Celta de Vigo club has an acceptable liquidity throughout the study, although it mainly has long-term assets. We also see how the management variable has been decreasing over the years, which is a symbol of recovery for the club.

### **Sporting de Gijón**

The Asturian Club entered into arrangement with creditors in 2006 after poor management of the club, as the club had been a successful club before the transformation of clubs into SCs in 1992, and 14 years later the club was in an extreme situation.

The Asturian club has negative owner’s equity during all the years studied, which shows a technical bankruptcy; in addition, the working capital is also negative throughout the period, which causes lack of liquidity, short-term solvency, and financial independence.

As we can observe, the Asturian club also has a debt and negative leverage as a direct result of its negative owner’s equity.



With regard to personnel costs, there is a before and after period to the entry into arrangement with creditors in 2006. Before, the percentage was between 107% and 126%, so that it exceeded the UEFA limit by far, but since 2006 and the entry into the arrangement with creditors, the Sporting changes its personnel expenses policy and the percentages fluctuate between 39% of 2008 and 65% of 2011, and only in 2013 do they exceed the 70% marked by the UEFA with 74%.

Lastly, as for the CAMEL variables, we can say that the club has negative values throughout all the years analyzed in the equity and capitalization variables. This is due to the negative values of owner's equity and the ordinary net results. We also see how the club has had very low liquidity values except for 3 years, which coincided with the years that the club ascended from category.

## 10.5 Conclusions

The conclusions we have drawn from this analysis are the following:

- The current assets of the clubs vary depending on the staff they have. Due to this, we can find great differences between 1 year and another.
- Most clubs can withstand high debt levels, thanks to having a “guarantee,” which are non-current assets that are the infrastructures such as stadiums, offices, sports cities, etc. Also, for this reason we can say that many entities have negative working capital as short-term debt is higher than short-term income, but sometimes this imbalance is not so important, as this debt is well covered by non-current assets.
- Within the CAMEL variable we can draw several conclusions: (1) the liquidity of the clubs is very important and it is a variable that in turn depends on the quality of the assets variable: the more that the assets are current assets, the greater the liquidity of the club; (2) the appearance of negative signs in the capitalization and equity results is due to the fact that the clubs had negative owner's equity and/or negative EBITDA, the same is true for leverage; (3) it is observed that when the management variable has a decreasing trend over the years, it is a sign of improvement of the clubs.
- In most clubs, short-term debt exceeds long-term debt for each of the years. This is one of the most serious problems that the clubs have, since the short-term debt is higher, the clubs sometimes cannot pay off the “day-to-day” debt, which causes it to accumulate and the debt is not settled, and therefore a need for payment is created, which in the long run causes technical bankruptcy, because the club's own financial means of financing are exhausted when trying to pay off that debt, or the entry into arrangement with creditors.
- Clubs tend to achieve high levels of indebtedness mainly for two reasons: (1) due to poor management by the management, which allows personnel expenses to reach percentages that almost cover the club's total operating income in a year and (2) as a consequence of the lack of achievement of objectives, which can lead the club to a situation of impossibility of paying the expenses due to not having enough income, leading the company to situations of technical bankruptcy or arrangement with creditors, as was the case of the Celta de Vigo.

- There is hope that the club accounts will be healthier as a result of the UEFA salary cap (70% of operating income) and the consequences of exceeding it: intervention of UEFA to analyze the economic situation of the club, or not being able to play a European competition.
- In addition, there are two other reasons that make us believe in an economic recovery of the clubs apart from the measures of UEFA. The first would be that the LFP is prepared to tighten the measures against clubs that do not comply with economic regulations and do not pay the debt they owe to the different entities within the time period; these measures are in order of seriousness from less to more: warning, loss of points, loss of category, and disappearance of the club. And a second ray of light arises as a result of the change undergone in television rights from the 2015–2016 season onward, which were sold jointly, thus achieving a more equal and higher income than the current ones, which will lead to having more scope to negotiate, pay off debts, and create better teams, which will unequivocally influence the Spanish football league to be more equal than it currently is.

The questions that could be asked now are: What is the price of entertainment? Will the fan be able to see football as part of a business, in which, there are debts that must be paid and settled?

This research has tried to shed some light on the economic and financial situation facing Spanish football clubs, with the aim of shaping what is behind the fun, excitement, and joy or sadness the king of sports par excellence brings about, a sport capable of paralyzing cities, countries, and continents for a few hours. As John Paul II said and Gay de Liebana (2012) states:

Of all unimportant things, football, is by far the most important.

## Appendix

### Sevilla Fútbol Club



| Year   | 2012                 | 2011         | 2010         | 2009               | 2008              | 2007                | 2006               | 2005         | 2004                |
|--|----------------------|--------------|--------------|--------------------|-------------------|---------------------|--------------------|--------------|---------------------|
| Position   | 9°                   | 5°           | 4°           | 3°                 | 5°                | 3°                  | 5°                 | 6°           | 6°                  |
| Capitalization   | 22.049%              | 28.271%      | 28.499%      | 27.189%            | 20.953%           | 25.500%             | 24.576%            | -7.409%      | -12.432%            |
| Assets   | 29.784%              | 40.216%      | 37.284%      | 32.327%            | 36.638%           | 42.639%             | 39.301%            | 33.944%      | 51.086%             |
| Management   | 70.363%              | 57.653%      | 56.170%      | 52.304%            | 57.029%           | 60.045%             | 41.530%            | 65.507%      | 47.097%             |
| Equity   | -305.404,777.74<br>€ | 799,623.77 € | 406,812.86 € | 19,338,116.61<br>€ | 6,166,468.97<br>€ | -51,047,655.38<br>€ | 64,408,066.64<br>€ | -11,619.24 € | -10,141,042.73<br>€ |
| Liquidity Ratio  | 50.800%              | 68.200%      | 61.500%      | 53.200%            | 61.000%           | 68.200%             | 63.500%            | 45.500%      | 68.700%             |
| Percentage of personal expenditure relying on operating income | 91%                  | 69%          | 61%          | 92%                | 65%               | 69%                 | 68%                | 57%          | 64%                 |
| Personal expenditures based on Gay de Liebana J.M (2012)       | 128.710%             | 96.814%      | 87.047%      | 126.613%           | 86.373%           | 91.586%             | 91.770%            | 75.408%      | 80.307%             |
| Leverage   | 3.899%               | 38.089%      | 42.038%      | 59.976%            | 32.068%           | 13.096%             | -23.448%           | -235.891%    | -89.256%            |
| Shareholders equity  | 24,545,848           | 39,897,228   | 44,767,049   | 45,483,952         | 29,197,071        | 26,102,834          | 25,664,563         | -3,411,706   | -5,824,898          |
| Short-term debt ratio  | 2.547898495          | 2.048661113  | 2.062703904  | 2.15411263         | 2.766981348       | 2.394398076         | 2.457473063        | -9.746316128 | -5.925250006        |
| Long-term debt ratio   | 0.987478738          | 0.48855699   | 0.446211783  | 0.523866316        | 1.005646392       | 0.527236579         | 0.611456595        | -4.750292772 | -3.118575957        |
| Total debt ratio   | 3.535377233          | 2.537218103  | 2.508915687  | 2.677978945        | 3.77262774        | 2.921634655         | 3.068929658        | -14.4966089  | -9.043825963        |

|   |             |             |             |             |             |             |             |             |             |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Return on Total Assets                  | -20.17      | -1.41       | -0.05       | 8.26        | 1.12        | -10.81      | -19.08      | -0.04       | 0.34        |
| Financial independence ratio            | 28.286%     | 39.413%     | 39.858%     | 37.342%     | 26.507%     | 34.227%     | 32.585%     | -6.898%     | -11.057%    |
| Short-term solvency ratio               | 53.017%     | 69.436%     | 63.425%     | 55.195%     | 63.195%     | 69.836%     | 65.072%     | 47.005%     | 69.352%     |
| Coverage of total debt through incomes. | 1.440789425 | 1.221713714 | 1.127233322 | 1.810376868 | 1.226244955 | 1.156753853 | 1.700762914 | 1.271855139 | 1.997028028 |

## Real Sociedad de Fútbol



| Year   | 2012          | 2011          | 2010           | 2009             | 2008             | 2007            | 2006            | 2005            | 2004         |
|--|---------------|---------------|----------------|------------------|------------------|-----------------|-----------------|-----------------|--------------|
| Position   | 12°           | 15°           | 1°             | 6°               | 4°               | 19°             | 16°             | 14°             | 15°          |
| Capitalization   | -5.264%       | -3.951%       | -0.554%        | -131.895%        | -53.445%         | 8.737%          | 8.615%          | -5.233%         | 4.186%       |
| Assets   | 20.940%       | 13.196%       | 7.817%         | 27.086%          | 28.990%          | 30.907%         | 37.850%         | 30.084%         | 38.536%      |
| Management   | 45.509%       | 45.391%       | 30.056%        | 79.955%          | 79.813%          | 66.669%         | 61.433%         | 68.412%         | 53.098%      |
| Equity   | -413.091.35 € | -242.564.83 € | 3,049.811.41 € | -36.105,381.58 € | -18,426,480.06 € | -7,146,329.30 € | -2,679,541.62 € | -8,802,927.67 € | 279,676.03 € |
| Liquidity Ratio  | 55.700%       | 41.000%       | 31.400%        | 70.800%          | 25.100%          | 39.900%         | 53.700%         | 31.700%         | 51.500%      |
| Percentage of personal expenditure relying on operating income | 73%           | 67%           | 80%            | 112%             | 87%              | 61%             | 56%             | 82%             | 46%          |
| Personal expenditures based on Gay de Liebana J.M (2012)       | 83.755%       | 77.846%       | 97.307%        | 124.507%         | 113.867%         | 89.486%         | 85.433%         | 136.106%        | 74.794%      |
| Leverage   | -131.188%     | -187.070%     | 215.262%       | 48.342%          | 193.375%         | 76.518%         | 141.208%        | 253.504%        | 543.494%     |
| Shareholders equity  | -3,385,458    | -2,401,506    | -323,753       | -30,585,751      | -14,413,259      | 3,457,772       | 4,042,900       | -2,695,831      | 2,919,612    |
| Short-term debt ratio  | -6.929361889  | -7.868464706  | -41.70998842   | -0.27704381      | -2.021280989     | 8.439987657     | 7.86565782      | -17.04383138    | 17.42695262  |
| Long-term debt ratio   | -13.06807936  | -18.44046588  | -139.8832819   | -1.481132211     | -0.849813701     | 2.005621828     | 2.741679982     | -3.066966735    | 5.461616133  |

(continued)

(continued)

|   |              |              |              |              |             |             |             |              |             |
|---|--------------|--------------|--------------|--------------|-------------|-------------|-------------|--------------|-------------|
| Total debt ratio                        | -19.99744125 | -26.30893059 | -181.5932703 | -1.758176021 | -2.87109469 | 10.44560948 | 10.6073378  | -20.11079812 | 22.88856876 |
| Return on Total Assets                  | 0.80         | 0.72         | 5.95         | -32.46       | -86.11      | -15.14      | -8.82       | -41.16       | 2.27        |
| Financial independence ratio            | -5.001%      | -3.801%      | -0.551%      | -56.877%     | -34.830%    | 9.573%      | 9.427%      | -4.972%      | 4.369%      |
| Short-term solvency ratio               | 57.408%      | 42.446%      | 33.846%      | 74.125%      | 26.836%     | 41.913%     | 55.856%     | 33.732%      | 52.825%     |
| Coverage of total debt through incomes. | 1.97338991   | 1.800663778  | 3.260649654  | 3.656270126  | 2.289292141 | 1.258921548 | 1.318874829 | 2.167499986  | 1.376412852 |

## Villarreal Club de Fútbol





| Year   | 2012                | 2011              | 2010        | 2009        | 2008        | 2007            | 2006         | 2005             | 2004            |
|--|---------------------|-------------------|-------------|-------------|-------------|-----------------|--------------|------------------|-----------------|
| Position   | 18°                 | 4°                | 7°          | 5°          | 2°          | 5°              | 7°           | 3°               | 8°              |
| Capitalization   | 40.978%             | 35.220%           | 0.454%      | 0.425%      | 0.209%      | 0.516%          | 0.555%       | 0.545%           | 0.571%          |
| Assets   | 69.837%             | 66.641%           | 63.885%     | 56.546%     | 52.254%     | 43.879%         | 38.443%      | 54.472%          | 57.358%         |
| Management   | 33.012%             | 27.927%           | 29.254%     | 31.925%     | 30.315%     | 34.457%         | 38.645%      | 21.743%          | 22.011%         |
| Equity   | 26,325,695,899,69 € | -342,750,380.87 € | 2,388.28 €  | 2,748.95 €  | 1,650.59 €  | 13,008,526.93 € | -82,845.15 € | -19,594,802.32 € | -1,359,078.15 € |
| Liquidity Ratio  | 126.300%            | 119.800%          | 124.000%    | 115.500%    | 115.300%    | 148.900%        | 120.700%     | 104.700%         | 118.600%        |
| Percentage of personal expenditure relying on operating income | 69%                 | 79%               | 67%         | 61%         | 60%         | 77%             | 60%          | 61%              | 53%             |
| Personal expenditures based on Gay de Liebana J.M (2012)       | 107.162%            | 115.782%          | 123.309%    | 104.724%    | 98.909%     | 123.627%        | 88.719%      | 91.033%          | 86.986%         |
| Leverage   | -0.051%             | 3.037%            | 3158.520%   | 3493.151%   | 6276.527%   | -223.935%       | 1757.238%    | 60.765%          | 560.620%        |
| Shareholders equity  | 100,888,323         | 96,822,457        | 1,218,133   | 1,147,408   | 502,258     | 934,946         | 793,184      | 772,445          | 713,780         |
| Short-term debt ratio  | 1.347378294         | 1.576717768       | 113.2624814 | 115.0299302 | 188.1087243 | 56.99494837     | 57.30588895  | 95.3670877       | 84.59322777     |
| Long-term debt ratio   | 0.092944628         | 0.262568295       | 106.2220648 | 119.4842401 | 289.5904962 | 135.8008034     | 121.8422049  | 87.15154234      | 89.61026072     |
| Total debt ratio   | 1.440322922         | 1.839286063       | 219.4845461 | 234.5141703 | 477.6992206 | 192.7957518     | 179.1480938  | 182.51863        | 174.2034885     |

|   |             |             |             |             |             |            |             |             |             |
|---|-------------|-------------|-------------|-------------|-------------|------------|-------------|-------------|-------------|
| Return on Total Assets                  | -13.17      | -8.66       | 0.03        | 0.03        | 0.04        | -16.16     | -4.58       | -8.45       | -6.13       |
| Financial independence ratio            | 69.429%     | 54.369%     | 0.426%      | 0.426%      | 0.209%      | 0.519%     | 0.558%      | 0.548%      | 0.574%      |
| Short-term solvency ratio               | 126.487%    | 120.004%    | 124.363%    | 115.772%    | 132.977%    | 149.199%   | 120.850%    | 104.823%    | 118.795%    |
| Coverage of total debt through incomes. | 2.054195945 | 2.913381358 | 4.550598216 | 3.597764096 | 3.478181964 | 3.97320495 | 2.483244284 | 4.805789255 | 4.371555067 |

## Real Club Celta de Vigo



| Year   | 2012               | 2011              | 2010         | 2009              | 2008                | 2007               | 2006                | 2005                | 2004               |
|--|--------------------|-------------------|--------------|-------------------|---------------------|--------------------|---------------------|---------------------|--------------------|
| Position   | 2°                 | 6°                | 12°          | 17°               | 16°                 | 18°                | 6°                  | 1°                  | 19°                |
| Capitalization   | -3.621%            | 4.716%            | 2.637%       | 3.155%            | -114.043%           | -74.351%           | 9.504%              | 11.394%             | 9.172%             |
| Assets   | 6.033%             | 8.288%            | 9.089%       | 10.206%           | 84.380%             | 62.922%            | 38.318%             | 39.762%             | 25.743%            |
| Management   | 26.011%            | 18.561%           | 18.444%      | 28.277%           | 63.270%             | 57.858%            | 36.357%             | 42.556%             | 59.321%            |
| Equity   | -3,791,740.70<br>€ | 2,389,988.32<br>€ | 287,886.92 € | 1,285,348.93<br>€ | -73,369,336.46<br>€ | 36,554,224.72<br>€ | -41,631,863.03<br>€ | 171,537,342.80<br>€ | -3,215,609.84<br>€ |
| Liquidity Ratio  | 40.600%            | 81.000%           | 72.200%      | 94.700%           | 227.000%            | 78.800%            | 64.100%             | 77.400%             | 39.600%            |
| Percentage of personal expenditure relying on operating income | 115%               | 107%              | 111%         | 168%              | 174%                | 74%                | 71%                 | 67%                 | 40%                |
| Personal expenditures based on Gay de Liebana J.M (2012)       | 134.451%           | 130.930%          | 132.645%     | 184.684%          | 229.396%            | 118.441%           | 103.567%            | 144.880%            | 97.270%            |
| Leverage   | 88.723%            | 74.093%           | 159.791%     | 915.035%          | 29.004%             | 11 879%            | 13.306%             | -6.990%             | 227 720%           |
| Shareholders equity  | -1,758,395         | 2,361,573         | 1,381,900    | 1,772,124         | -45,750,961         | -35,807,135        | 5,657,492           | 6,252,036           | 5,491,254          |
| Short-term debt ratio  | -4.039525738       | 2.110356742       | 4.717512043  | 3.326394707       | -0.324107062        | -1.067809117       | 6.216389562         | 4.47745805          | 6.98324535         |

(continued)

(continued)

|   |              |             |             |             |              |              |             |             |             |
|---|--------------|-------------|-------------|-------------|--------------|--------------|-------------|-------------|-------------|
| Long-term debt ratio                    | -24.57900047 | 18.09257021 | 32.2112461  | 27.36978203 | -1.552756164 | -1.277163918 | 3.305169639 | 3.299453302 | 2.919033865 |
| Total debt ratio                        | -28.61852621 | 20.20292695 | 36.92875814 | 30.69617674 | -1.876863226 | -2.344973036 | 9.521559201 | 7.776911352 | 9.902279215 |
| Return on Total Assets                  | -9.40        | 5.36        | 1.28        | 29.69       | -34.33       | -27.86       | -10.82      | -23.92      | -13.14      |
| Financial independence ratio            | -3.494%      | 4.950%      | 2.708%      | 3.258%      | -53.280%     | -42.644%     | 10.502%     | 12.859%     | 10.099%     |
| Short-term solvency ratio               | 41.245%      | 83.272%     | 73.079%     | 97.250%     | 228.288%     | 79.254%      | 64.855%     | 77.943%     | 40.190%     |
| Coverage of total debt through incomes. | 6.04916071   | 6.880613703 | 7.031986047 | 8.320488261 | 8.376741331  | 3.688778663  | 2.701089842 | 3.138496891 | 1.571052584 |

## Real Sporting de Gijón



| Year   | 2012               | 2011               | 2010               | 2009                | 2008                | 2007                 | 2006                | 2005                | 2004                |
|--|--------------------|--------------------|--------------------|---------------------|---------------------|----------------------|---------------------|---------------------|---------------------|
| Position   | 19°                | 10°                | 15°                | 14°                 | 3°                  | 13°                  | 9°                  | 10°                 | 5°                  |
| Capitalization   | -57.704%           | -78.679%           | -93.525%           | -234.319%           | -1222.240%          | -865.937%            | -1547.414%          | -882.895%           | -415.977%           |
| Assets   | 40.142%            | 35.906%            | 50.335%            | 83.001%             | 73.539%             | 80.722%              | 59.926%             | 45.931%             | 64.853%             |
| Management   | 111.328%           | 112.285%           | 109.057%           | 182.144%            | 163.164%            | 75.962%              | 183.491%            | 135.659%            | 124.442%            |
| Equity   | -2,454,238.26<br>€ | -6,257,558.97<br>€ | -8,199,739.10<br>€ | -29,417,394.28<br>€ | -38,500,193.31<br>€ | -209,468,287.08<br>€ | -56,023,656.33<br>€ | -62,909,936.28<br>€ | -34,589,868.91<br>€ |
| Liquidity Ratio  | 47.100%            | 47.200%            | 77.200%            | 85.400%             | 74.900%             | 21.700%              | 3.700%              | 5.000%              | 16.400%             |
| Percentage of personal expenditure relying on operating income | 74%                | 65%                | 57%                | 58%                 | 39%                 | 62%                  | 107%                | 118%                | 126%                |
| Personal expenditures based on Gay de Liebana J.M (2012)       | 78.763%            | 68.498%            | 59.840%            | 59.109%             | 40.313%             | 65.831%              | 111.805%            | 126.146%            | 133.291%            |
| Leverage   | -43.886%           | -30.561%           | -87.976%           | -62.361%            | -112.202%           | 2.853%               | 92.779%             | 59.325%             | 70.368%             |
| Shareholders equity  | -13,714,517        | -14,397,487        | -15,458,235        | -20,153,420         | -42,351,936         | -48,944,207          | -50,027,957         | -47,562,739         | -26,316,539         |
| Short-term debt ratio  | -1.336806404       | -0.916574098       | -0.658305721       | -0.3993367          | -0.074931178        | -0.428020416         | -1.045363843        | -1.021841362        | -0.935502309        |
| Long-term debt ratio   | -1.39617717        | -1.354418255       | -1.410928004       | -1.027431181        | -1.006885826        | -0.687461407         | -0.019260092        | -0.091422447        | -0.304895374        |
| Total debt ratio   | -2.732983573       | -2.270992353       | -2.069233725       | -1.426767881        | -1.081817004        | -1.115481824         | -1.064623934        | -1.113263809        | -1.240397683        |

|   |             |             |             |             |             |             |             |             |             |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Return on Total Assets                  | 2.94        | 3.15        | 31.76       | 89.32       | 94.28       | -10.95      | -97.59      | -70.48      | -74.56      |
| Financial independence ratio            | -36.590%    | -44.034%    | -48.327%    | -70.088%    | -92.437%    | -89.647%    | -93.930%    | -89.826%    | -80.619%    |
| Short-term solvency ratio               | 52.039%     | 49.790%     | 81.755%     | 88.702%     | 80.297%     | 21.779%     | 3.705%      | 5.091%      | 16.665%     |
| Coverage of total debt through incomes. | 1.189288055 | 1.147458454 | 1.127050684 | 1.097073629 | 3.445766343 | 8.854699452 | 10.19856391 | 9.819629216 | 6.098822945 |



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# Chapter 11

## Investing in Shares of Europe Football Clubs: Definitely, an Alternative Investment

Raúl Gómez-Martínez, Camilo Prado-Román, and Raúl Menéndez Moreno

**Abstract** This study is based on the analysis of the football clubs shares that make up the STOXX Europe Football Index as risk-diversifying assets. All football clubs are listed on a stock exchange in Europe or Eastern Europe, Turkey, or the EU-Enlarged region. To do this, we will demonstrate through the autocorrelation matrix and the Bayesian Network Analysis that the STOXX Europe Football Index is not correlated with the European Stock Market Index. The results of the study show that the STOXX Europe Football Index is not correlated with the European Stock Market Index, and it will act as alternative investment. The analysis shows that these alternative assets could be included in an investment portfolio with the aim of diversifying them, thereby reducing their overall risk.

**Keywords** Alternative investment • STOXX Europe Football Index • Risk diversifying assets • Sports • Football • Stock index • Stock markets, Bayesian Network Analysis • Autocorrelation matrix, investment portfolio

### 11.1 Introduction

The aim of this study is to demonstrate that the STOXX Europe Football Index is not correlated with European Stock Market Index and thereby demonstrate that the STOXX Europe Football Index can serve as a risk-diversifying asset in an investment portfolio. With this they can act as an alternative investment asset.

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To do this, we performed an analysis through two methodologies, the autocorrelation matrix and the Bayesian Network Analysis with the aim of demonstrating that the STOXX Europe Football Index is not correlated with European Stock Market Index. The results of the analysis show that the European Stock Market Index is not correlated with the STOXX Europe Football Index. With this it is possible to introduce this asset in an investment portfolio, and acts as a diversifier of the portfolio.

The chapter is divided into different headings: first, theoretical background, then analysis of the hypothesis and sample and data analysis, after methodology, and to end with the results and conclusions of the study.

## 11.2 Theoretical Background

The alternative investments are those aimed at obtaining an absolute return, positive and independent of the evolution of markets (Prado-Román et al. 2012a). López and Hurtado (2008) define it as “that oriented to obtain positive returns in any environment of market. These returns tend to have a low correlation with the behavior of traditional financial assets.”

Alternative investments include Real Estate Assets, Risk Capital, Hedge Funds, and non-financial assets (art, classic cars, historic coins, stamp, and others). Investments in non-current assets and financial assets are composed of all those assets whose performance is not directly related to the evolution of financial markets (money markets, fixed income, and equity). These investments will have a non-traditional management, a low correlation with traditional management, and high Sharpe ratios (Bolsa y MercadosEspañoles et al. 2007).

As a main function, they try to reduce the correlation between the different financial markets. If we put them in an investment portfolio, they will have the functions of diversification of risk and of obtaining returns in absolute terms. Non-financial assets consist of the assets of collection, real estate, raw materials, noble metals, and others as natural resources (Barr and Affleck-Graves 1985 and Coca-Pérez 2001b). In addition to the time of investing, it is necessary to consider restrictions like the temporal horizon and the taxation of the product. The temporal horizon is mainly medium and long term (Salomon Jr and Lennox 1984, Berman and Schulman 1986, Coca-Pérez 2001a; Mei and Moses 2002, 2005; Lombra 2003; López and Hurtado 2008; Caballer and de la Poza 2010; Prado-Román et al. 2014b); one of the causes is the high commissions of the intermediaries, so you cannot take advantage of the non-correlation, in the short term, with the traditional markets.

This type of investment has increased greatly in recent years, motivated mainly by the diversification of the risk of the portfolios of investment. Randall (1981) studies the investment in collectible assets in times of inflation based on the assumption that there is a bearish interest rate portfolio that pays 3% of the inflation rate, obtaining that the portfolio composed of tangible assets shows a 1% per year faster than the inflation rate.

Prado-Roman et al. (2012) develop different investment portfolios for a risk-free asset of 3%, with gold numismatic assets of all kinds with precious metals, obtaining a market portfolio with an annual expected return of 23.05% with a standard deviation of 3.49%. Prado-Román et al. (2014a) perform a valuation of numismatic assets, analyzing their investment characteristics to be introduced into portfolios as diversifying assets. Other authors, Alcázar et al. (2015), analyzed the most important numismatic asset in the United States, The Walking Liberty, and introduced it into different investment portfolios. They demonstrated that The Walking Liberty was an alternative asset and overall portfolio risk improved upon introduction.

### 11.3 Hypothesis

The alternative investment can be considered as an investment whose returns follow a different path than the conventional investments (López and Hurtado 2008), so if we invest buying shares of European football teams we should not expect the same returns as the conventional index.

The STOXX Europe Football Index covers all football clubs that are listed on a stock exchange in Europe or Eastern Europe, Turkey, or the EU-Enlarged region. The index accurately represents the breadth and depth of the European football industry.<sup>1</sup> The components of this index are the shares of this European football teams (Table 11.1):

In order to demonstrate that football shares are an alternative investment, we propose the following hypothesis:

H1: STOXX Europe Football Index is not correlated with European Stock Market Index.

If we found that STOXX Europe Football Index, we should consider it as an alternative investment like investing on art, real state, cars, commodities, etc.

#### 11.3.1 *Sample and Data Analysis*

We use a 1-year sample of daily quotes that start with January 14, 2015 and ends on January 14, 2016. The data have been downloaded from Stoxx webpage<sup>2</sup> (Graph 11.1).

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<sup>1</sup>Visit <https://www.stoxx.com/index-details?symbol=FCTP> for more details.

<sup>2</sup>Visit <https://www.stoxx.com>

**Table 11.1** FCTP Components

| Name of the Football Club    | Country        |
|------------------------------|----------------|
| Besiktas                     | Turkey         |
| Parken Sport & Entertainment | Denmark        |
| Juventus                     | Italy          |
| Fenerbahce Sportif Hizmet    | Turkey         |
| Borussia Dortmund            | Germany        |
| Olympique Lyonnais           | France         |
| Trabzonspor Sportif Yatir    | Turkey         |
| Galatasaray                  | Turkey         |
| Celtic                       | United Kingdom |
| AS Roma                      | Italy          |
| AFC Ajax                     | Netherland     |
| Lazio                        | Italy          |
| Brondby IF B                 | Denmark        |
| Aalborg Boldspilklub         | Denmark        |
| Arhus Elite                  | Denmark        |
| Sport Lisboa e Benfica       | Portugal       |
| Silkeborg                    | Denmark        |
| TETEKs AD TETOVO             | Macedonian     |
| SPORTING                     | Portugal       |
| FUTEBOL CLUBE DO PORTO       | Portugal       |
| AIK FOOTBALL                 | Sweden         |
| RUCH CHORZOW                 | Poland         |

Source: <https://www.stoxx.com>



\*\* Chart displays Closing High and Closing Low

Source: <https://www.stoxx.com/index-details?symbol=FCTP>

**Graph 11.1** STOXX® Europe Football chart from January 14, 2015 to January 14, 2016 (Source: <https://www.stoxx.com/index-details?symbol=FCTP>)

## 11.4 Methodology

We use two alternative approaches in order to validate the hypothesis proposed:

- An autocorrelation matrix
- A Bayesian Network Analysis

### 11.4.1 Autocorrelation Matrix Analysis

The autocorrelation matrix is used in various digital signal processing algorithms. It consists of elements of the discrete autocorrelation function. A correlation matrix is used to investigate the dependence between multiple variables at the same time. The result is a table containing the correlation coefficients between each variable and the others.

In order to validate H1 we create an autocorrelation matrix

- STOXX Europe Football
- STOXX All Europe Total Market
- STOXX All Europe 100
- STOXX All Europe 800

If we found a correlation near 1 between the Indexes studied, we will consider a conventional investment and any correlation far from 1 should be considered an alternative investment. We should consider the following intervals in order to calculate the correlation between variables (Webster 2000):

|             |                                     |
|-------------|-------------------------------------|
| 0           | Null correlation (correlación nula) |
| 0.01 a 0.19 | Very low correlation                |
| 0.2 a 0.39  | Low correlation                     |
| 0.4 a 0.69  | Moderate correlation                |
| 0.7 a 0.89  | High correlation                    |
| 0.9 a 0.99  | Very high correlation               |
| 1           | Perfect correlation                 |

Then we will validate H1 if the correlation between STOXX Europe Football and the other indexes are not a high correlation Matrix, less than 0.7 coefficients.

### 11.4.2 Bayesian Network Analysis

A *Bayesian network* or *probabilistic directed acyclic graphical model* is a probabilistic graphical model (a type of statistical model) that represents a set of random variables and their conditional dependencies via a directed acyclic graph (DAG). For example (Wikipedia, 2017), a Bayesian network could represent the probabilistic

relationships between diseases and symptoms. Given symptoms, the network can be used to compute the probabilities of the presence of various diseases.

Formally, *Bayesian networks* are DAGs whose nodes represent random variables in the Bayesian sense: they may be observable quantities, latent variables, unknown parameters, or hypotheses. Edges represent conditional dependencies; nodes that are not connected (there is no path from one of the variables to the other in the Bayesian network) represent variables that are conditionally independent of each other. Each node is associated with a probability function that takes, as input, a particular set of values for the node's parent variables and gives (as output) the probability (or probability distribution, if applicable) of the variable represented by the node. For example, if  $m$  parent nodes represent  $m$  Boolean variables then the probability function could be represented by a table of  $2^m$  entries, one entry for each of the  $2^m$  possible combinations of its parents being true or false.

Generalizations of Bayesian networks that can represent and solve decision problems under uncertainty are called influence diagrams.

Given a situation where it might rain today, and might rain tomorrow, what is the probability that it will rain on both days? Rains on two consecutive days are not independent events with isolated probabilities. If it rains on 1 day, it is more likely to rain the next. Solving such a problem involves determining the chances that it will rain today, and then determining the chance that it will rain tomorrow is conditional on the probability that it will rain today. These are known as “joint probabilities.” Suppose that  $P(\text{rain today}) = 0.20$  and  $P(\text{rain tomorrow given that it rains today}) = 0.70$ . The probability of such joint events is determined by:

$$P(E_1, E_2) = P(E_1)P(E_2|E_1) \quad (11.1)$$

which can also be expressed as:

$$P(E_2|E_1) = \frac{P(E_1, E_2)}{P(E_1)} \quad (11.2)$$

Working out the joint probabilities for all eventualities, the results can be expressed in a table format (Table 11.2):

From the aforementioned table, it is evident that the joint probability of rain over both days is 0.14, but there is a great deal of other information that had to be brought into the calculations before such a determination was possible. With only two discrete, binary variables, four calculations were required.

This same scenario can be expressed using a Bayesian Network Diagram as shown (“!” is used to denote “not”) (Fig. 11.1).

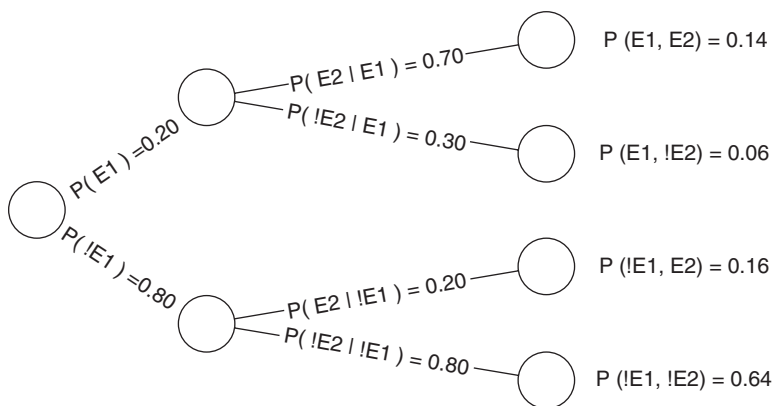
One attraction of Bayesian Networks is the efficiency that only one branch of the tree needs to be traversed. We are really only concerned with  $P(E1)$ ,  $P(E2|E1)$ , and  $P(E2|E1)$ .

We can also utilize the graph both visually and algorithmically to determine which parameters are independent of each other. Instead of calculating four joint

**Table 11.2** Marginal and joint probabilities for rain both today and tomorrow

|                                       | Rain tomorrow | No rain tomorrow | Marginal probability of rain today |
|---------------------------------------|---------------|------------------|------------------------------------|
| Rain today                            | 0.14          | 0.06             | 0.20                               |
| No rain today                         | 0.16          | 0.64             | 0.80                               |
| Marginal probability of rain tomorrow | 0.30          | 0.70             |                                    |

Source: [Niedermayer.ca](http://Niedermayer.ca)



Source: [Niedermayer.ca](http://Niedermayer.ca)

**Fig. 11.1** A Bayesian Network showing the probability of rain (Source: [Niedermayer.ca](http://Niedermayer.ca))

probabilities, we can use the independence of the parameters to limit our calculations to two. It is self-evident that the probabilities of rain on the second day having rained on the first are completely autonomous from the probabilities of rain on the second day having not rained on the first.

At the same time as emphasizing parametric indifference, Bayesian Networks also provide a parsimonious representation of conditionality among parametric relationships. While the probability of rain today and the probability of rain tomorrow are two discrete events (it cannot rain both today and tomorrow at the same time), there is a conditional relationship between them (if it rains today, the lingering weather systems and residual moisture are more likely to result in rain tomorrow). For this reason, the directed edges of the graph are connected to show this dependency.

In this case, we will Accept H1 if we create a Bayesian Network and the returns of STOXX Europe Football Index are not connected to the returns of the other European Indexes studied:



- STOXX All Europe Total Market
- STOXX All Europe 100
- STOXX All Europe 800

## 11.5 Results

The statistical analysis has been made using dVelox. dVelox is a data mining platform for decision making in business using the best algorithms for Bayesian networks and is also capable of displaying Bayesian networks 3D to help understand the relationship between exogenous variables (explanatory variables) and endogenous variable (target variable) to find the causes that explain the behavior of the endogenous variable.

dVelox finds dependencies directly from the data and summarizes all the knowledge in an easily understandable intelligent network.<sup>3</sup>

As we follow two different approaches to validate H1, we have the following results:

### Model 1

If we study the autocorrelation matrix calculated by dVelox, we can see that the coefficients between STOXX All Europe Total Market, STOXX All Europe 100, and STOXX All Europe 800 are perfect, but the coefficient for STOXX Europe Football Index is moderate (Table 11.3):

Following the Model 1, we should accept Hypothesis 1, the STOXX Europe Football Index is not correlated with European Stock Market Index.

### Model 2

The following image represents the Bayesian network calculated by dVelox (Fig. 11.2):

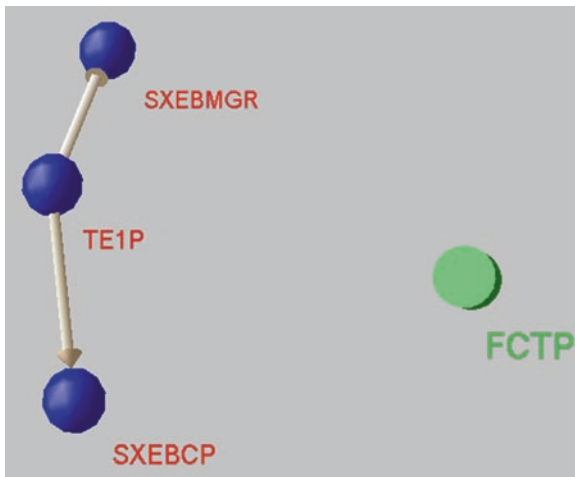
As there is no connection between the nodes of conventional indexes and the node for STOXX Europe Football Index, we should accept the hypothesis 1, the STOXX Europe Football Index is not correlated with European Stock Market Index. We can assume that there is no probability condition between conventional investment and football investment so it is an alternative investment.

**Table 11.3** Autocorrelation matrix

| FCTP | TEIP | SXEBCP | SXE BMGR |
|------|------|--------|----------|
| 1.00 | 0.54 | 0.52   | 0.53     |
| 0.54 | 1.00 | 1.00   | 0.99     |
| 0.52 | 1.00 | 1.00   | 0.99     |
| 0.53 | 0.99 | 0.99   | 1.00     |

<sup>3</sup>For more information about dVelox, visit its vendors site at: [www.apara.es](http://www.apara.es)

**Fig. 11.2** Bayesian Network for FCTP provided by dVelox (Source: [www.apara.es](http://www.apara.es))



Source: [www.apara.es](http://www.apara.es)

## 11.6 Conclusion

The aim of this study is to analyze if the STOXX Europe Football Index is correlated with the European Stock Market Index. This study wants to demonstrate that the STOXX Europe Football Index can serve as a risk-diversifying asset in an investment portfolio. For this, we performed a statistical analysis through the autocorrelation matrix and the Bayesian Network in order to validate our starting hypothesis.

From the results obtained we can conclude that the two methods used, autocorrelation matrix and the Bayesian Network, have validated our starting hypothesis, proving that the STOXX Europe Football Index serves as a risk-diversifying asset in an investment portfolio. Because the STOXX Europe Football Index is not correlated with the European Stock Market Index, STOXX Europe Football Index investments can be used as risk diversifiers.

This study has limitation that could have been made with more assets, financial and alternative. For future studies, it is intended to include these assets together with other financial assets (ETF, equities, fixed income, swaps, or derivatives) as alternatives (real state, hedge fund, art, classic cars, historic coins, or stamps) in investment portfolios, with the objective of building that portfolio that best suits the investor, according to its profile and to know what is the Market Portfolio.

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# Chapter 12

## The Reliability of Game Systems in Team Sports

Jaime Gil-Lafuente

**Abstract** In previous works Butenko, S., Pardalos, P., Sergienko, I., Shylo, V., & Stetsyuk, P. (2009). Estimating the size of correcting codes using extremal graph problems. In *Optimization* (pp. 227–243). New York: Springer, we have investigated the structure of game schemes, including their composition and the relationship among athletes that compose them. We have also established that if a set of game schemes possesses enough common characteristics, the set of schemes then defines a game system. A crucial aspect of our work refers to the efficacy or lack of efficacy in the functioning of game schemes, which we will analyze in the present work based on the incorporation of a new concept that we call the “reliability function.”

**Keywords** Efficacy • Game scheme • Inference • Reliability • Subjectivity • Theory of sports systems • Valuation

### 12.1 The Reliability Function in a Game System

The reliability function has the objective of providing an estimated “degree” of success of a scheme. Several approaches can be followed to achieve this objective. The first of these approaches is established on classical elements based on a probabilistic approach. The second approach is based on a multivalent logic approach and uses a set of subjective numerical estimations as a starting point. Both approaches demand the consideration of several prior hypotheses, which include the following<sup>1</sup>:

1. Each athlete can or cannot perform his/her activity adequately.
2. The “good moment” of the game for an athlete is independent of that of the other athletes (the “contamination” hypothesis requires the use of another approach).

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<sup>1</sup>Given the eminently practical objective of this work, we omitted certain formal aspects that should be explicitly stated under other circumstances.

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- At each encounter, the person in charge of the sport sets a degree or level [0, 1] according to whether he/she believes that his/her task will be fulfilled (tending to 1) or not (tending to zero).

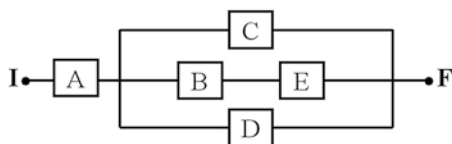
A third approach somewhat abandons the second hypothesis.

However, let us begin with the first of these alternative approaches. Once these assumptions have been established, we shall proceed to determine the reliability function. Thus, it is necessary to first apply the structure function.

We have observed that the formal representation of a scheme is given by this function and that the basis of the organized game is found in the scheme. A game would not exist at a certain level without a scheme, as elementary as the game might be.

We will designate the probability that a player  $i$ ,  $i = A, B, \dots$ , succeeds in his/her performance or task with probability  $P_i$ ,  $i = A, B, \dots$ . Evidently,  $q_i = 1 - p_i$  is the contrary possibility of failure in the task. It has been demonstrated<sup>2</sup> that to determine the reliability function  $h(P_a, P_b, P_c, \dots)$  of the system, it is sufficient to transform the structure function  $\varphi$  into its simple form  $\varphi_s$  (called the simply structure function) and to substitute the variables  $a, b, c, \dots$  for the probabilities  $P_a, P_b, P_c, \dots$

Let us proceed to the development of a specific case. We will start with the following game scheme:



The structure function is obtained:

$$\begin{aligned} \varphi(a, b, c, d, e) &= a \cdot (c + b \cdot e + d) \\ &= a \cdot c + a \cdot b \cdot e + a \cdot d \end{aligned}$$

Let us remember that each addend provides a tie or a minimum path, which in our assumption is  $\{A, C\}$ ,  $\{A, B, E\}$ ,  $\{A, D\}$ .

To determine the structure function in the simple form, it is sufficient to develop the function  $\varphi$  in the following manner:

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<sup>2</sup>See, for example, the magnificent work by Gil Lafuente, A.M.: Analysis of the immobilized immersed in a system, Proceedings of the SIGEF Congress [Análisis del inmovilizado inmerso en un Sistema Proceedings del Congreso SIGEF]. Mexico, November 1999.

$$\begin{aligned}
\varphi s(a, b, c, d, e) &= a \cdot c + a \cdot b \cdot e + a \cdot d \\
&= 1 - (1 - a \cdot c) \cdot (1 - a \cdot b \cdot e) \cdot (1 - a \cdot d) \\
&= 1 - (1 - a \cdot c - a \cdot b \cdot e + a \cdot b \cdot c \cdot e) \cdot (1 - a \cdot d) \\
&= 1 - \left( \begin{array}{l} 1 - a \cdot c - a \cdot b \cdot e + a \cdot b \cdot c \cdot e - a \cdot d + a \cdot c \cdot \\ d + a \cdot b \cdot d \cdot e - a \cdot b \cdot c \cdot d \cdot e \end{array} \right) \\
&= a \cdot c + a \cdot d + a \cdot b \cdot e - a \cdot c \cdot d - a \cdot b \cdot c \cdot e - a \cdot b \cdot \\
&\quad d \cdot e + a \cdot b \cdot c \cdot d \cdot e
\end{aligned}$$

The reliability function in probabilistic terms is:

$$\begin{aligned}
h(PA, PB, PC, PD, PE) &= Pa \cdot Pc + Pa \cdot Pd + \\
&Pa \cdot Pb \cdot Pe - Pa \cdot Pc \cdot Pd - Pa \cdot Pb \cdot Pc \cdot Pe - Pa \cdot \\
&Pb \cdot Pd \cdot Pe + Pa \cdot Pb \cdot Pc \cdot Pd \cdot Pe
\end{aligned}$$

Continuing with this example, we will assume that the coaches in charge of the club, based on the data accumulated concerning the same players in identical or very similar circumstances, would be able to provide the probability of “the right move” of each one of the athletes A, B, C, D, E, which are the following:

$$PA = 0.8; PB = 0.9; PC = 0.6; PD = 0.7; PE = 0.5.$$

We substituted these values into the reliability function  $h$  and obtained:

$$\begin{aligned}
h(PA, PB, PC, PD, PE) &= (0.8) \cdot (0.6) + (0.8) \cdot (0.7) + (0.8) \cdot \\
&(0.9) \cdot (0.5) - (0.8) \cdot (0.6) \cdot (0.7) - \\
&(0.8) \cdot (0.9) \cdot (0.6) \cdot (0.5) - (0.8) \cdot \\
&(0.9) \cdot (0.7) \cdot (0.5) + \\
&+ (0.8) \cdot (0.9) \cdot (0.6) \cdot (0.7) \cdot (0.5) \\
&= 0.48 + 0.56 + 0.36 - 0.336 - \\
&\quad 0.216 - 0.252 + 0.151 \\
&= 1.40 - 0.804 + 0.151 \\
&= 0.747
\end{aligned}$$

Thus, with the data provided, the scheme possesses a high reliability, which is given by a probability value equal to 0.747 of achieving success with the proposed scheme.

## 12.2 The Subjective Approach

However, in reality, it is hardly possible to obtain data in the form of probabilities. In many cases, the rigorous Borel–Kolmogorov axiom hampers the correct use of this valuable scientific instrument.

Assuming that the necessary conditions that justify a probabilistic approach are not fulfilled, we must follow the alternative subjective approach.

The approach in this field can be performed based on consideration of the information from the sporting club’s coaches themselves but now with the need to compile historical data that is based solely on their “perception” (experience, knowledge, intuition, and good service). The technique to be utilized can be very simple if certain theoretical exigencies are disregarded in the interest of practical utility. In effect, the use of the operators  $\cap$ , intersection (representative of the logic operation “AND”), and  $\cup$ , union (representative of the logic operation “OR/AND”), is sufficient to obtain a good result. The structure function is taken as a starting point, given that its monomials constitute the “ties” or minimum “paths.”

If we call  $\mu_i$ ,  $i = A, B, \dots$  the probabilities (valuations) that players A, B, ... adequately perform their tasks and consider the same structure function, from our example:

$$\varphi(a, b, c, d, e) = a \cdot c + a \cdot b \cdot e + a \cdot d$$

The following reliability function can be considered:

$$k(\mu_A, \mu_B, \mu_C, \mu_D, \mu_E) = (\mu_A \cap \mu_C) \cup (\mu_A \cap \mu_B \cap \mu_E) \cap (\mu_A \cap \mu_D)$$

The explanation for this formula is simple. The ball can travel from I to F via three different paths. The first path demands that the athletes A “and” C perform their tasks; the second path requires that A “and” B “and” E perform their tasks; and the third path requires that athletes A “and” D perform their tasks. Evidently, one can follow any one of these paths, i.e., “either” one “or” the other “or” the third, as well as one of them “and” the other.

If, for pedagogical purposes, we consider that the coaches supply the same values for the valuations as those provided in the probabilistic model (the valuations are considered as probabilities), then:

$$\mu_A = 0.8; \mu_B = 0.9; \mu_C = 0.6; \mu_D = 0.7; \mu_E = 0.5.$$

and the reliability function would now take the following value:

$$\begin{aligned} k(\mu_A, \mu_B, \mu_C, \mu_D, \mu_E) &= (0.8 \cap 0.6) \cup (0.8 \cap 0.9 \cap 0.5) \cup (0.8 \cap 0.7) \\ &= 0.6 \cup 0.5 \cup 0.7 \\ &= 0.7 \end{aligned}$$

In this specific case, the result does not differ greatly from that obtained when we observed ourselves immersed in the realm of chance. However, other outcomes are possible. For different hypotheses and different operators, the results do not coincide. Within the context of subjectivity, we can conclude that the “possibility” that the scheme is successful is 0.7. The reliability is thus high.

Let us now abandon the independence hypothesis, and let us proceed with the assumption that the performance of a player is linked to that of another. There is, therefore, a certain “contamination” (positive or negative) between athletes related by the same game scheme. To represent this phenomenon formally and to obtain results capable of being expressed numerically, we consult a mechanism of the brain of living beings that is utilized almost constantly: logical inferences.2.3 Methodology.

### 12.2.1 Inferences

Let us recall that an inference reflects a thought expressed verbally with the words, “if...then.” For example, if player A passes the ball well, then player B will make a header shot; however, if player D dribbles, then he finds himself in a condition to shoot at the goal. Thus, expressly or tacitly, this reasoning permits ideas to be connected, which can lead to fruitful conclusions if employed adequately.

In classical mechanistic works, whose genuine representation is given by binary logic or Boolean logic, only one inference operator exists. This logic admits only the truth or falsehood of a proposition. Thus, a “dribble” can only be good or bad, without the possibility of intermediate situations. Therefore, the variables only take the values 1 (for a good dribble) or 0 (for a bad dribble). In this context, scientists have concluded that to justify logical reasoning, the exclusive operator is

$$\bar{x} \vee y = (x \rightarrow y)$$

in which  $x$  and  $y$  are the values (0 or 1) of the propositions, and  $(x \rightarrow y)$  is the value of the inference. The complement to the value of the proposition  $x$  is designated by  $\bar{x}$ .

However, throughout the last decades, several logical schemes have been developed that are called multivalent logics. In these schemes, it is not only possible to take sides for the truth or falsehood of a proposition (e.g., a good dribble) but also to “tint” propositions in the sense of considering different degrees of skills of the same proposition (very good dribble, sensational dribble, regular dribble, etc.) such that as many values are taken between one and zero inclusive as necessary, with the condition that as we approach the truth (the skill level of the dribble, in our example), a value closer to 1 must be assigned and, as we move away, a value closer to 0 must be



assigned. However, upon taking this step, a myriad of operators has been discovered that fulfill the requirements of the logic<sup>3</sup>.

The greatest approximation to the reality of the human mind (by nature, given to shades of meaning, i.e., subjective qualifications) has created a new problem: that of selecting the most adequate operators for the problem being treated among all of the options. However, two operators have merited confidence for utilization in multiple circumstances:

- Lee's inference:  $\bar{x} \vee y = (x \rightarrow y)$  and
- Lukasiewicz's inference:  $1 \wedge (\bar{x} + y) = (x \rightarrow y)$ .

Based on one of these operators (or whichever other one is considered adequate), it is possible to link together the propositions until the desired objective is attained.

After making these theoretical considerations, we can continue with our practical case. Thus, we shall recall the structure function from which we began:

$$\varphi(a, b, c, d, e) = a \cdot e + a \cdot b \cdot e + a \cdot d.$$

Let us also recall that each one of the addends constitutes a "tie" or minimum "path." In addition, given the initial hypotheses (passing through the least number of players possible), the transit from the origin of the play to the end will be performed precisely with the minimum ties. Thus, we shall incorporate the inferences in each one of the hypotheses.

### 12.2.2 Applying Lee's Inference Data and Variables

We shall first utilize Lee's inference. First minimum tie:

$$\{A, C\}$$

1<sup>st</sup> Proposition: A plays well

1<sup>st</sup> Inference: If A plays well, then C receives the ball properly

2<sup>nd</sup> Proposition: C receives the ball properly

2<sup>nd</sup> Inference: If C receives the ball properly, then their objective will be achieved

Once the propositions and inferences have been established, we shall ask the coach about his/her opinion in the interval [0, 1] about the valuation to be assigned to the first proposition and to the last two inferences. Let us assume that the answer is the following:

Possibility that A plays well:  $a = 0.8$

Possibility that if A plays well, then C receives the ball properly

---

<sup>3</sup>Let us remember that every T-conorm is transformed into an inference operator by simply changing the value of a proposition  $x$  for its complement  $\bar{x}$ .

$$(a \rightarrow c) = 0.9$$

We apply Lee's inference:

$$a \vee c = (a \rightarrow c) = 0.9$$

$$0.2 \vee c = 0.9$$

$$c = 0.9$$

Thus, we have obtained a valuation of the second proposition. Let us assume that the coach provides the following valuation for the second inference:

Possibility that if C receives the ball properly, then their objective will be achieved:  
 $(c \rightarrow f) = 0.6$

Lee's inference is again applied:

$$0.1 \vee f = 0.6$$

$$f = 0.6$$

Thus, we obtain the first result corresponding to the minimum tie {A, C}. If the game follows this path, the possibility of success is 0.6, which, translated via a "semantic scale," would mean that there is a greater possibility of success than of failure following this path.

We referred to the utilization of a "semantic scale" (Kaufmann, 1990). In effect, in numerous cases, with the objective of helping coaches in their task of assigning valuations, it is customary to provide the coaches with a scale from 0 to 1, for which a verbal expression is made to correspond with a number (valuation) in the interval [0, 1]. As an example, we reproduced the following scale about a good play:

- 1: Extraordinary
- 0.9: Very good
- 0.8: Good
- 0.7: Rather good
- 0.6: More good than bad
- 0.5: Regular (neither good nor bad)
- 0.4: More bad than good
- 0.3: Rather bad
- 0.2: Bad
- 0.1: Very bad
- 0: Abysmal

A semantic scale can also be established in relation to the possibility of making a good play, such as:

- 1: Totally possible
- 0.9: Practically possible
- 0.8: Almost possible

- 0.7: Rather possible
- 0.6: More possible than impossible
- 0.5: Regular (neither good nor bad)
- 0.4: More impossible than possible
- 0.3: Rather impossible
- 0.2: Almost impossible
- 0.1: Practically impossible
- 0: Impossible

We will now continue to apply Lee's inference in the second minimum tie.  
Second minimum tie:

$$\{A, B, E\}$$

1<sup>st</sup> Proposition: A plays well

1<sup>st</sup> Inference: If A plays well, then B receives the ball properly

2<sup>nd</sup> Proposition: B receives the ball properly

2<sup>nd</sup> Inference: If B receives the ball properly, then the player will effectively "pass it" to E

3<sup>rd</sup> Proposition: E receives a good "pass"

3<sup>rd</sup> Inference: If E receives a good "pass", then their objective will be achieved

The valuations given by the coach are the following:

Possibility that A plays well:  $a = 0.8$

Possibility that if A plays well, then B will receive the ball properly:  $(a \rightarrow b) = 0.9$

Possibility that if B receives the ball properly, then they will make a good pass:  
 $(b \rightarrow e) = 0.8$

Possibility that if E receives a good pass, they will achieve their objective  $(e \rightarrow f)$   
 $= 0.5$

We continue to utilize Lee's inference:

$$0.2 \vee b = 0.9b = 0.9$$

$$0.1 \vee e = 0.8$$

$$e = 0.8$$

$$0.2 \vee f = 0.5$$

$$e = 0.5$$

We thus obtain the second result corresponding to the minimum tie  $\{A, B, E\}$ .  
When the possibility of success is equal to 0.5, one concludes that by following this path, the achievement of the objective is neither possible nor impossible.

Third minimum tie:

$$\{A, D\}$$

1<sup>st</sup> Proposition: A plays well

1<sup>st</sup> Inference: If A plays well, then D receives the ball properly

2<sup>nd</sup> Proposition: D receives the ball properly

2<sup>nd</sup> Inference: If D receives the ball properly, then their objective will be achieved

The valuations given by the coach are the following:

Possibility that A plays well:  $a = 0.8$

Possibility that if A plays well, then D receives the ball properly:  $(a \rightarrow d) = 0.7$

Possibility that if D receives the ball properly, then their objective will be achieved:

$$(d \rightarrow f) = 0.7$$

We continue to apply Lee's inference:

$$0.2 \vee d = 0.7$$

$$d = 0.7$$

$$0.3 \vee f = 0.7$$

$$f = 0.7$$

The result corresponding to the third and last minimum tie  $\{A, D\}$  is 0.7. Thus, by following this path, it is quite possible to achieve the desired objective.

In summary, of the three minimum paths, the most appropriate option appears to be the third path  $\{A, D\}$ , with the highest possibility of success of 0.7.

To obtain a global value of the scheme, we consider it sufficient to find the union of the valuations corresponding to the three minimum ties:

$$0.6 \cup 0.5 \cup 0.7 = 0.7.$$

We have thus reached the end of this chapter, in which we have attempted to provide enough elements to obtain a representative value of reliability in a game scheme. There are, evidently, other possibilities, even though, in our understanding, due to its representativeness, simplicity, and effectiveness, we lean toward the third option, in which the concept of inference plays an essential role. It is quite certain that a reasonable doubt can arise when selecting the inference operator. However, we do not believe that this difficulty greatly diminishes the capacity for utilization of the model.

### ***12.2.3 Applying Lukasiewicz's Inference***

As a concluding remark, let us examine the result when applying Lukasiewicz's inference instead of Lee's inference. In developing the calculations, we shall utilize the same information.

Lukasiewicz's inference:

$$1 \wedge (\bar{x} + y) = (x \rightarrow y)$$

First minimum tie:

$$\begin{aligned} &\{A, C\} \\ &1 \wedge (0.2 + c) = 0.9 \\ &c = 0.7 \\ &1 \wedge (0.3 + f) = 0.6 \\ &f = 0.3 \end{aligned}$$

Second minimum tie:

$$\begin{aligned} &\{A, B, E\} \\ &1 \wedge (0.2 + b) = 0.9c \\ &b = 0.7 \\ &1 \wedge (0.3 + e) = 0.8 \\ &e = 0.5 \\ &1 \wedge (0.5 + f) = 0.5 \\ &f = 0 \end{aligned}$$

Third minimum tie:

$$\begin{aligned} &\{A, D\} \\ &1 \wedge (0.2 + d) = 0.7 \\ &d = 0.5 \\ &1 \wedge (0.5 + f) = 0.7 \\ &f = 0.2 \end{aligned}$$

One observes that in this field, Lukasiewicz's inference is more rigorous than Lee's inference, as it yields results with lower values. In our repeated example, the value of the game scheme would be:

$$0.3 \cup 0 \cup 0.2 = 0.3$$

and the most appropriate path would be provided by the first minimum tie  $\{A, C\}$ .

## 12.3 Conclusions

We have developed a calculation process for Lukasiewicz's inference after the implementation of Lee's inference with the goal of elucidating the many possibilities that the proposed model offers. In addition, it would not be difficult to create an inference operator specific to the problems of reliability in sports or even one specific to a certain club.<sup>4</sup> However, we believe that with the information that has been provided, we have a sufficient number of elements available for an adequate exposition of this line of work. While Lee's inference highlights the positive aspects of the player possessing the ball at each stage of the scheme, Lukasiewicz's inference highlights the errors of previous players. In many cases, the latter inference appears to be more realistic, without signifying exclusivity in the selection.

The determination of a reliability function of a scheme and its resulting valuations allows us to delve into interesting aspects of the theory of sports systems. One of these possibilities refers to the very frequent situations in the development of competitions involving increasing the reliability of a scheme, either from the offensive perspective or the defensive perspective. In these circumstances, coaches can either double one or several of the players or duplicate the corresponding part of the scheme. This finding represents our immediate future contribution.

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# Chapter 13

## Decision-Making in Sports Traumatology

**Victor V. Krasnoproshin, Vladimir A. Obraztsov, Sergey A. Popok,  
and Herman Vissia**

**Abstract** This chapter deals with problems related to the development of decision support systems in sports traumatology. A mathematical model is proposed. The model is based on ideas and methods of the pattern recognition theory. The structure of the proposed computer technology is described.

**Keywords** Decision-making problem • Pattern recognition • Decision support systems • Sports traumatology

### 13.1 Introduction

Currently, knowledge and information about human medicine are distributed worldwide and stored in different forms, from the traditional (books and magazines) to optional storage of electronic information. The volume of stored information increases nonlinearly, causing crises. As with many new technologies, the implementation of a correct choice and the most appropriate one for the patient is difficult. With the massive amount of information, the treatment choice, even for many experts, is a difficult task, not to mention young, inexperienced medical personnel. There is also a problem of the structure, aggregation, synthesis, and update of the knowledge.

A possible solution to the problems is the computerization of preparation, storage, and use of the information/knowledge related to the diagnosis and choice of

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treatment/rehabilitation. This chapter discusses the development of a computer technology and a decision support system in the field of orthopedic trauma sports.

The system is a powerful tool to update and effectively use new knowledge to solve tough cases of trauma, orthopedics, and rehabilitation. The computer technology and modern information processing can help experts to cope with the flow of information in choosing appropriate treatments and to accelerate the process of gathering experience.

Analysis of the material showed that decision support systems with modern applications in medicine can be divided into three major independent groups. The first group relates to the development of the telemedicine technology (Campbell et al. 2001). The second group focuses on clinical practice, the so-called evidence-based medicine (Sackett et al. 1996). The third group is based on the generation of ideas, the foundation of expert systems (Thayse et al. 1988; Davis and Lenat 1982). The third group is less dependent on a technology. The proposed decision support system is considered as the most promising at this stage of development of information technology, since it is based on logic models, the model identification (Yudin et al. 2008; Prokopchuk 2007; Gutnikov et al. 2008), integration of appropriate technologies, and data manipulation tools/knowledge standards.

This chapter describes a computer technology aiming to automate the preparation, storage, and use of information, knowledge-related diagnosis, and choice of treatment and recovery rehabilitation.

## 13.2 Problem Description

The methodology for designing and developing computer decision support systems, based on knowledge, is well known (Miller 1994; Poissant et al. 2005; Popok and Krasnoproshin 1998; Kashkevitch et al. 1994; Hudson 1981). The methodology includes:

- Formalization of the subject area and statement of the problem
- Choice of suitable mathematical tools for the solution
- Development of the corresponding software and hardware environment

Let us consider peculiarities of the methodology implementation with respect to orthopedics, being the basis for sports traumatology.

A diagnosis implies that for any disease/trauma, there exists its own, unique collection of symptoms (combination of feature values). In the whole collection of symptoms, describing the disease, there is one or a group of pathognomonic features in the absence of which diagnosing cannot be made.

In orthopedics, especially in the part concerning diseases and damage to soft tissues, examination of the patient and diagnosing are carried out with the help of clinical methods without making use of technical means. This is due to the fact that the majority of anatomic formations, involved in the pathologic process, are examined

by palpation and the use of provocation stressing tests and determination of the extent and painfulness in joints movement. The presence of pathognomonic combinations of symptoms (features of the pathognomonic state) makes the diagnosis a reliable one.

From the point of view of a specialist in the subject area, it is possible to single out the following stages of knowledge formalization concerning orthopedics:

- Acquisition of scientific information about each nosologic unit taking into account personal experience and opinions of different authors
- Determination of symptoms and their classification
- Description of diagnoses on the basis of the classified features

To understand patient's complaints in the orthopedic field, one should recognize and interpret all features and symptoms together. Irrelevant and relevant information should be separated for coming to a final conclusion. A pattern for recognition is often a matter of experience. Furthermore, there could be a lack of knowledge on a certain subject. This leads to typical or stereotyped/patterned situations. Recognition of patterns often depends on the experience and the presence/absence of knowledge in a specific field. When making decisions based on experience, there is always a possibility of mistakes by overlooking certain features. Too often patients are wandering around with their obviously "simple" complaints (medical shopping).

To come to a justification of the diagnosis, we should obtain certain information about the complaint, i.e., information which we systematically retrieve from the patient step by step. These steps should imitate the way of thinking of the person who is performing the investigation.

The problem of diagnosis lies in the management of different features/signs. With classical investigation methods, one can obtain certain values of features. It is preferable that the features should be divided into subsets. Together, the subsets represent a certain diagnosis.

A diagnostic problem may be stated as follows:

*In a preassigned set of objects of an arbitrary nature, the following data is specified:*

- *a finite number of subsets (diagnoses).*
- *initial information about objects is specified with the help of a finite set of features that uniquely correspond to diagnoses and are defined in the chosen space of features.*

*It is necessary to build a decision-making algorithm that calculates values of properties being a member of a subset for each object.*

It is clear that each particular problem greatly depends on peculiarities of the subject area and requirements that are imposed upon algorithms.

Results, obtained when analyzing the problem of diagnostics in orthopedics, as well as experts' opinions have shown that the following restrictions are observed:

- Each localization (hand, elbow, upper arm, etc.) may be considered as independent from other ones, and the number of solutions is finite.

- Each localization is well structured in the system of binary features.
- Each diagnosis in a group of features is associated with a set of rules that determine the initial information about the diagnosis. When forming the rules, it is sufficient to use familiar logical operations.
- Each diagnosis can be uniquely associated with a particular set of a possible treatment. That is why alongside the diagnoses, the abovementioned properties also describe possible variants of treatment.
- The sought-for algorithm should be defined on the whole set of features so that results of its operation can be treated as the realization of properties. The algorithm should have certain monotony, i.e., it should calculate values of properties on partial and redundant descriptions. It is also desirable that the results of its operation can be interpreted, with the specified degree of detail, from the point of view of a doctor, i.e., there should be a possibility to explain these results.
- A decision support system should meet a number of technological requirements. In particular, it should have a convenient graphic interface, provide a possibility of simple modifications of the knowledge base, and operate at least in three modes: training, decision-making, and explanation of the latter one. The system should operate in Windows environment, should be oriented to a wide range of users (doctors), and should have a well-developed system of help. The solution should be made in reasonable time frames.

### 13.3 Mathematical Model

Diagnosis and treatment can be easily done by using results of the problem identification. The problem solution depends on the nature of priori information. Frequently, the problem is identified with only two options for presenting such information and reasonable precedent. The proposed technology is based on deductive and inductive algorithms. An inference algorithm (Thayse et al. 1988; Davis and Lenat 1982; Koppel et al. 2005) is a popular algorithm used for various common knowledge.

As it is known, the method for developing such algorithms is based on rigorous mathematical rules. It is different from the kind of inductive inference (a technique commonly referred to as the attributes defined by a finite number of objects at infinity beyond the given set (Thayse et al. 1988)). Flexible engineering, based on this conclusion, does not exist. The solution of the matching problem, development of the technology, inductive inference algorithms, and their justification become very important when determining knowledge specifications in decision support systems. It can be done, for example, by using pattern recognition techniques.

Full description of the algorithm with valid proof can be found in (Krasnoproshin and Obratsov 1995). We believe that the proposed algorithm has full features of flexibility. The algorithm can be basically described by the following two properties:

- *Monotonicity*, understood in the sense of the usual implication: the monotonicity of information, monotonicity in quantitative and qualitative assessments of properties

- *Structural decomposition of information*: any information represented in the form of independent parts

The algorithm justification is simple and is based on the validity of the deductive inference. Its meaning is as follows: for each task solved by a method of resolution with guaranteed results, one can specify a finite amount of information sufficient to match the results obtained by the resolution method.

### 13.4 The Composition and Structure of the Software Technology

For the construction of decision support systems in sports traumatology, it is proposed to use the three-module architecture:

1. Diagnostic module
2. Treatment module
3. Normal partition anatomy of the musculoskeletal system

These modules can operate independently or together. The architecture is based on client-server technology and processing of distributed information. Server components of the system are designed to operate in a network server, providing the “internal” functions (such as database management and knowledge) (see Fig. 13.1). The server can operate in the multiple user mode.

In the client side, functioning on the network workstations includes features meant to work with the end user (see Fig. 13.2).

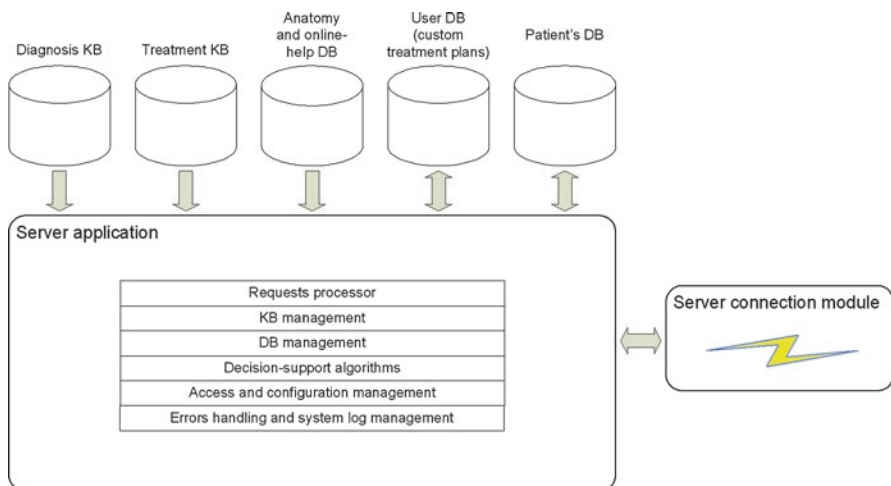


Fig. 13.1 Architecture of the server part

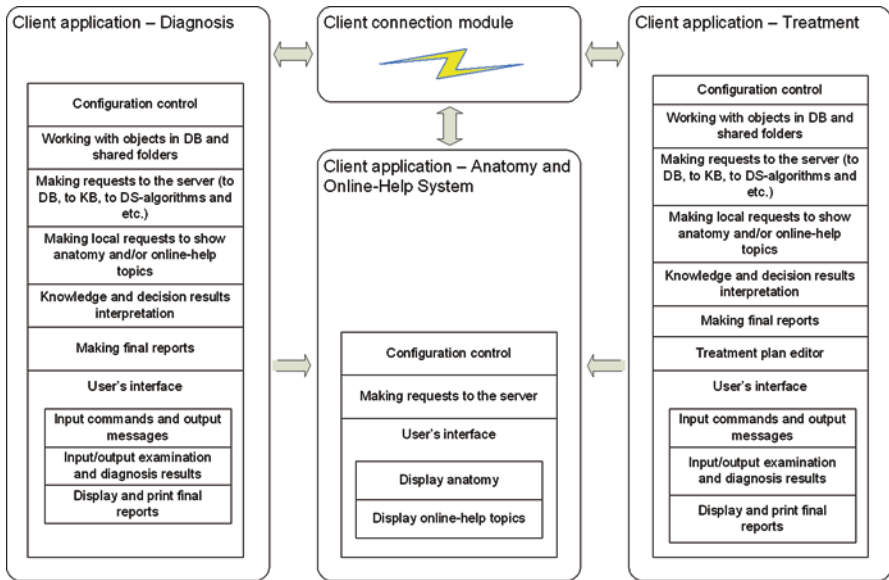


Fig. 13.2 Architecture of the client part

Regarding the functional content of the technology:

1. Some parameters of systems, implemented on the basis of the technology, can be changed through configuration files, giving flexibility to customize the system to specific operating conditions.
2. The client communicates with the server through queries using networking capabilities of the operating system.
3. The server can operate in an open or secure mode, limiting the number of users and their rights. For the description of user groups, the standard administration tools of the operating system are used.
4. A subject area is divided into relatively independent subsystems, i.e., localization support solutions that can be realized independently.
5. Patient's information is stored in the patient's file.

Depending on the system configuration, the information can be stored in a database on the server or in a shared directory; the user can have access to shared directories through a separate channel, bypassing the server.

### 13.5 Creating a System Based on the Structured Medical Knowledge

The system covers the entire process from the time of the survey to the treatment strategy. Information on digital media and the computer network may be augmented by new knowledge at certain intervals.

The developed software helps to design a treatment program, combining standard methods with personal experience. This is done through the formalization and modeling of individual treatment processes. Thus, a doctor's behavior model is created. The model is based on posindromnoy diagnostics.

Patient-specific treatment is based on the experience and knowledge of experts. The user can adjust the nature of information and instructions. The developed system has been successfully implemented in sports medicine center.

### 13.6 Peculiarities of Software Technology Implementation

For the technology implementation, it is necessary to solve three interrelated problems: knowledge representation, realization of deduction techniques, and implementation of the user interface.

One of the main requirements is independence of knowledge from its handling. This ensures the integrity and consistency of knowledge, simplicity of its modification, and modular principle of constructing the system as a whole.

Under such conditions, it is natural to use the object-oriented approach (Grady 1991; Gutnikov et al. 2013) that considerably reduces the complexity of problem solution. As a result, C++ in Windows environment has been chosen as the language of realization.

*Knowledge Representation* The system of knowledge representation has the following structure. Each type of knowledge has a support library containing realization of operations that are necessary for handling objects of the type of knowledge. The library is represented as a Dynamic Link Library. Operations and parameters are similar for all types of knowledge with which the system can work. In particular, the operations include new object creation, object deletion, object loading from a file, object saving in a file, object editing, and some others. The system has a knowledge manager that translates queries of the support system for the dialogue with the user and the solution deduction system into calls of operations from the library supporting a certain type of knowledge. Each object of knowledge (when it is formed) receives a unique name and is kept in a file of the system knowledge base. The object name can be used when referring to objects or in queries to the manager.

The logical structure of the knowledge is based on the notion of classes. The system comprises the following main classes:

*Features Group* class is used to represent simple features and to reflect the procedure for examining the patient.

*Diagnosis* class serves to describe different diseases of a particular subject area. Objects of this class are described by means of names and possible illustrations.

*Formula* class is used to represent rules corresponding to *Features Group* and *Diagnosis* classes.

*Patient* class serves to save information about the patient: values of features, computed diagnoses, and passport data.

*Deduction Techniques* The way of representing the algorithm of decision-making differs from the abovementioned one only in that the library supporting *Algorithm* class includes some additional operations.

The algorithm comprises two stages:

*Stage 1. Information analysis*

*Input:* an object of *Formula* class

*Output:* numeric characteristics of objects belonging to a feature, *Features Group* and *Diagnosis* classes

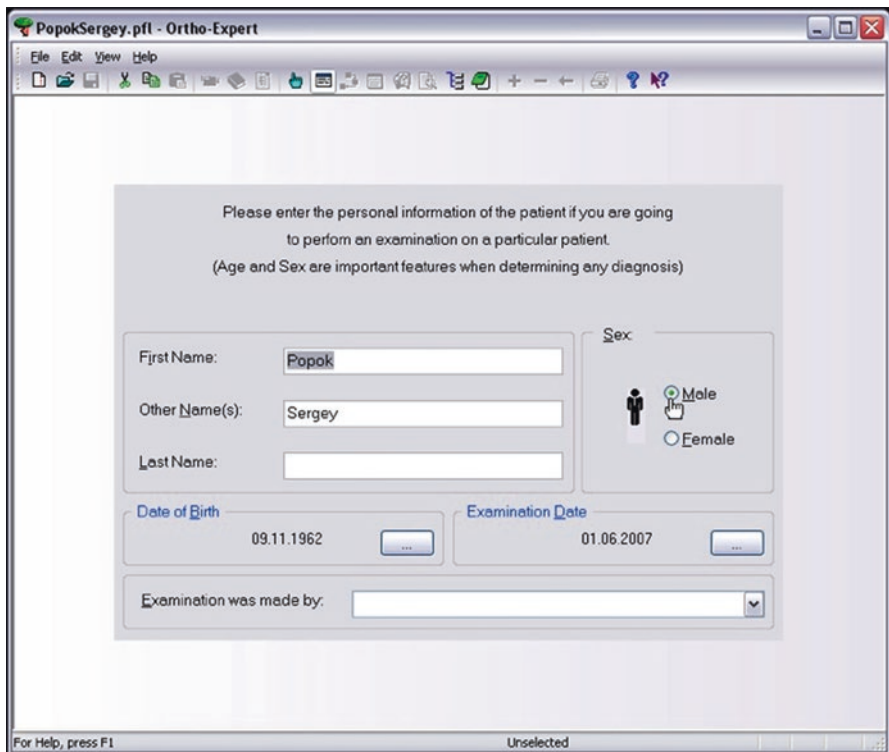
*Stage 2. Examination*

*Input:* an object of *Patient* class

*Output:* the degree of correspondence between an object of *Patient* class and objects from *Diagnosis* class (the degree of diagnosis justification)

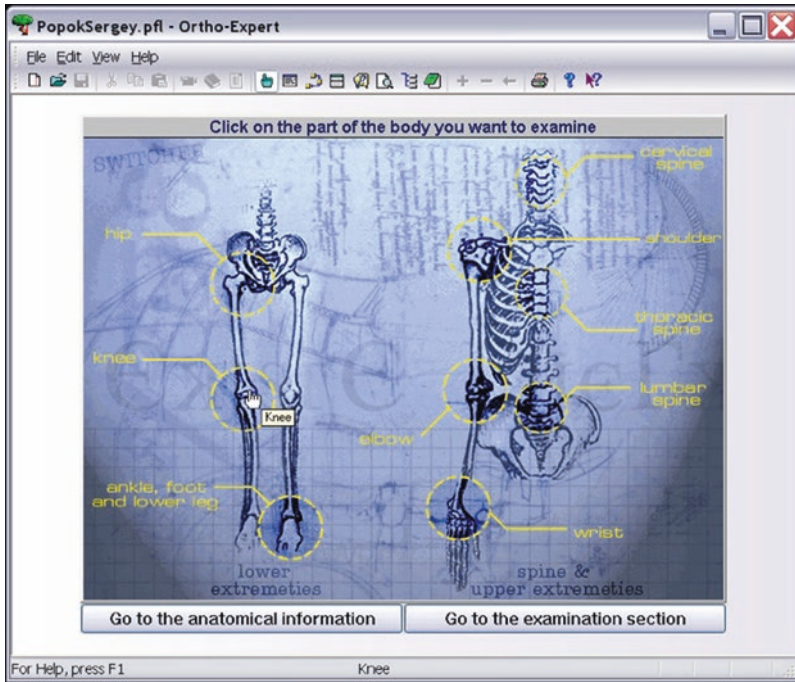
*User Interface* The technology uses standard means of multi-window interface of applications MS Windows (MDI). Information about a patient is represented in four windows:

*Patient Personal Info* window makes it possible to enter and edit passport data of the patient.

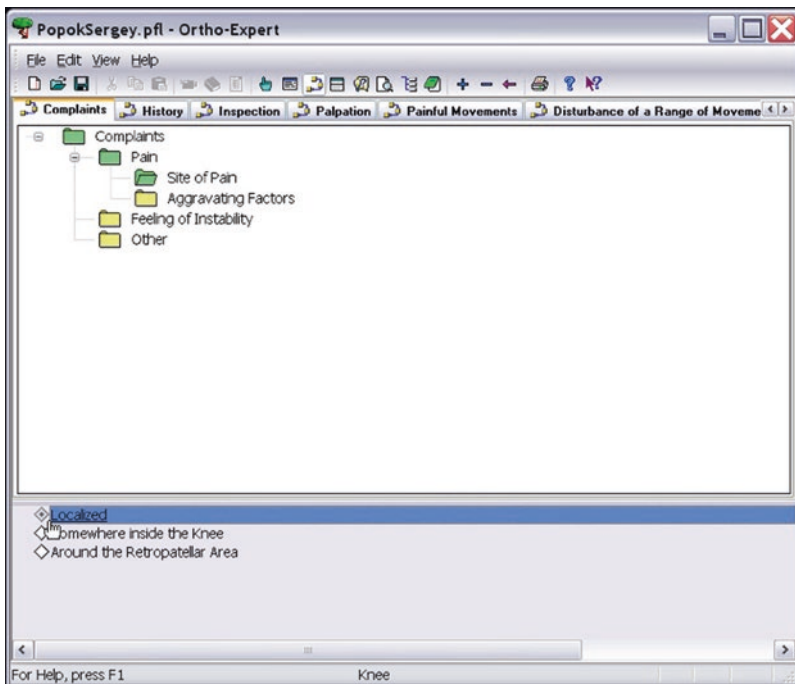


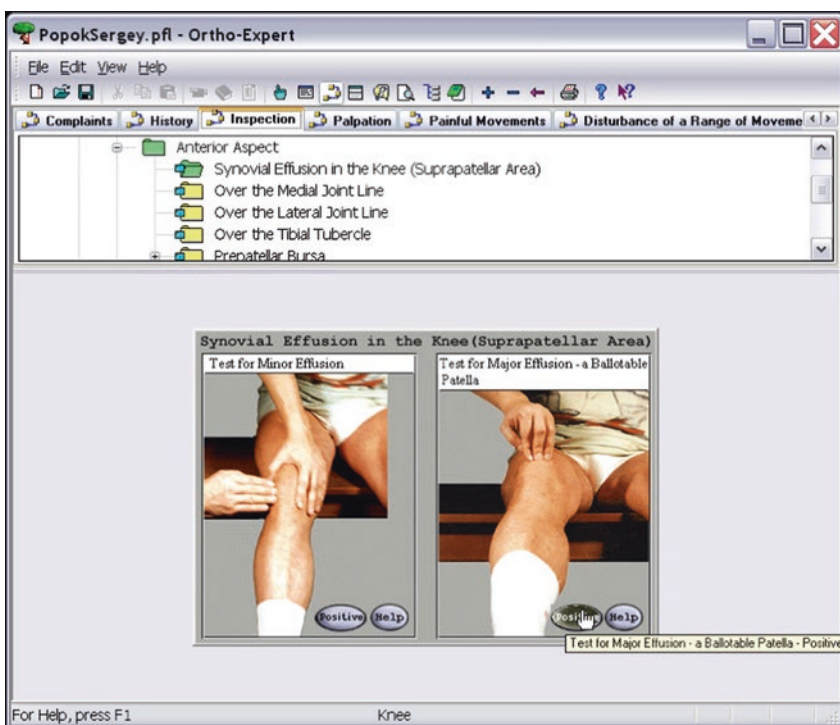
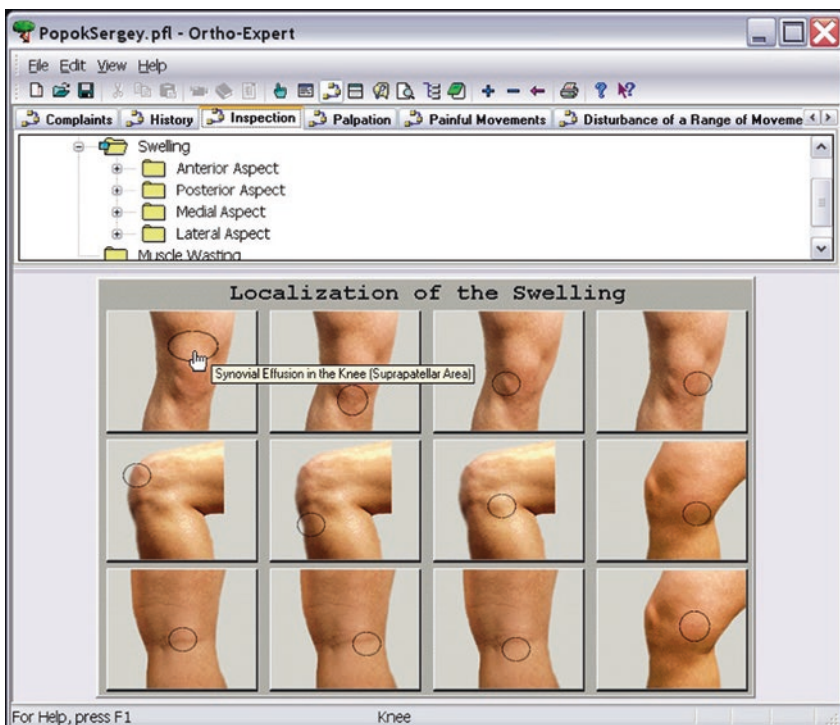
*Choice of the Part of the Body for Examination* window makes it possible to choose localization for investigation.

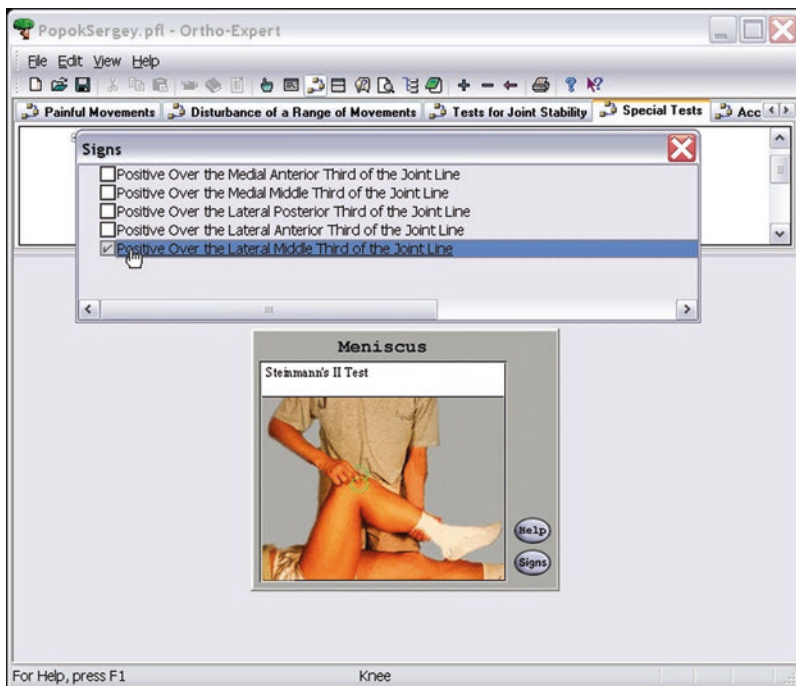




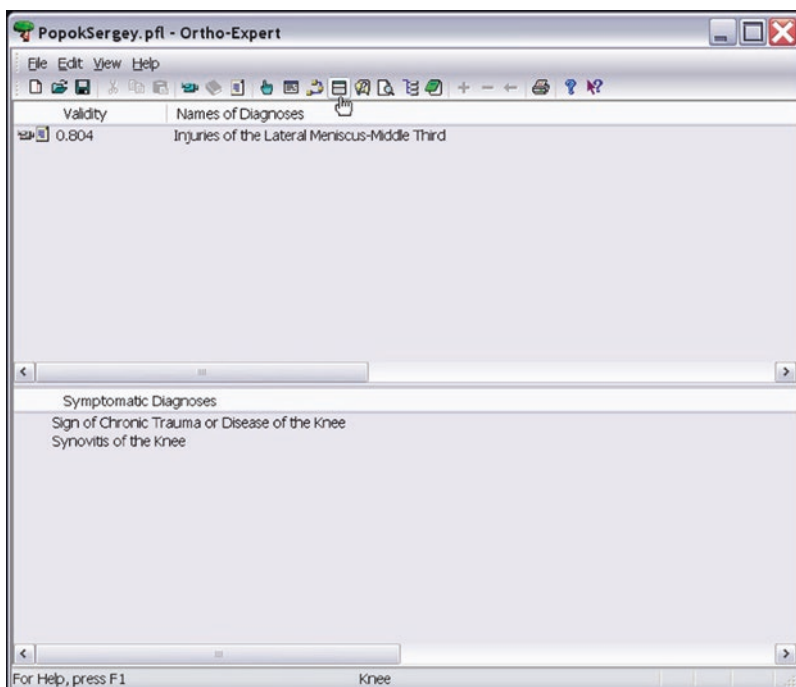
*Examination Results* windows are used for entering results of patient's examination.

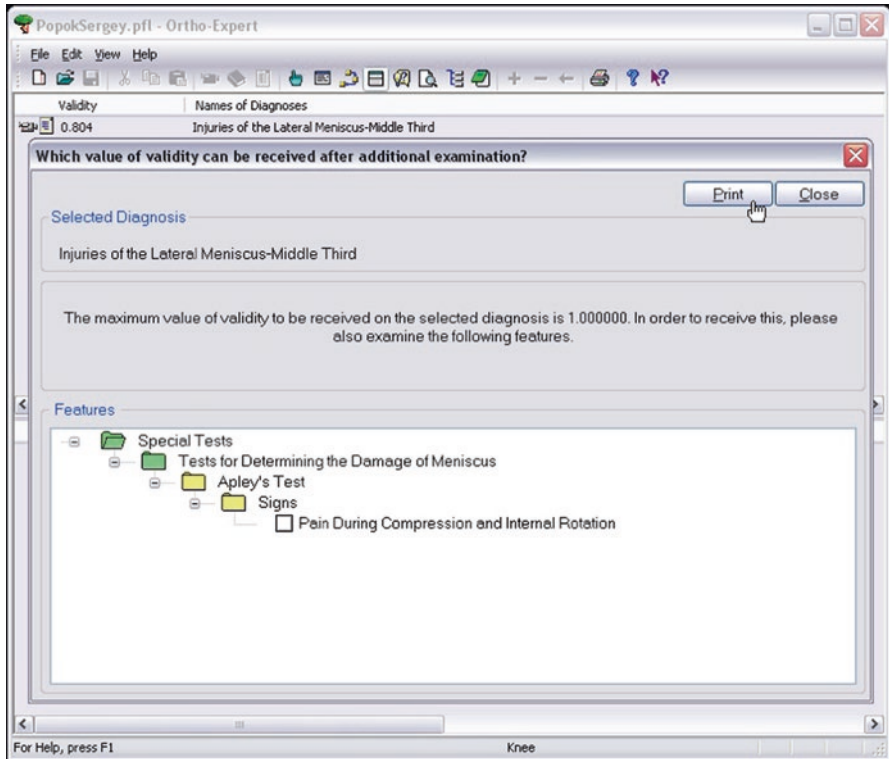






*Final Report* window shows a list of found diagnoses together with their degree of justification. It is also possible to refer to techniques of the system explanation with a number of questions concerning the obtained results.





*Patient Notes* window makes it possible to enter informal information about the patient.

The technology also comprises a number of dialogue windows to work with the database of patients and to edit medical knowledge. In system implementation, special means have been introduced to represent classes as Dynamic Link Library. The means describe in detail a generalized set of operations and methods for interaction between objects. A manager of dynamic objects and Dynamic Object class was realized as implementation of the proposed means.

The technology was created with the participation of health professionals. It formed the basis for various decision support systems successfully operating in sports medicine structures of the Netherlands, Belarus, and Vietnam.

### 13.7 Conclusion

The intelligent decision support systems, based on the developed technology, can be used in training, as well as for reference and recommendation purposes. They are designed to provide expert support on every level of knowledge representation.

Moreover, they offer solutions for every form of pathology in specialized treatments. The use of such systems helps to improve conditions and quality of care in medical centers and orthopedic hospitals.

Network versions of the systems help to standardize treatment and rehabilitation, as well as care protocols, medical support for athletes.

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# Chapter 14

## Geographical Gap Analysis of Sport Activity Among the Italian Regions

Domenico Marino and Domenico Tebala

**Abstract** The main aim of this chapter is to provide a measure of the differences in sport activities among Italian regions. The sportiness rate of a country or of the different territories within a country is a very interesting research topic because it is directly linked to other variables that have valuable content and offer a strong economic impact. First and foremost, it is a new expression of citizenship rights. Therefore, in spite of the apparent marginalization of this topic in relation to other welfare matters of greater relevance, the sportiness rate is unquestionably linked to healthcare spending, life expectancy, and social participation. The sportiness rate is directly related to the widespread participation of population in sport activities, which constitutes an element of fundamental importance both for public planning of activities and for budget purposes, themselves the base for private investments. The resulting index, albeit an initial approximation, is a good descriptor of the differences existing among Italian regions. An analysis of sport-related economic policies shows how investments in sport activities function as a social bridge and, thus, are powerful tools to promote social cohesion across the territory.

**Keywords** Sport activity • Social capital • Territorial differences

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## 14.1 The Role of Sport within the Economic and Social System

The participation rate of individuals in sport activities is a variable featuring a certain degree of complexity. Indeed, it involves both infrastructure and social and economic matters. The first fundamental aspect that determines the degree of sport activities carried out in a given geographical area is for sure represented by supporting infrastructures. Such infrastructures have ambivalent features in that they can be committed only to big events and professional sports; in this sense, they are a kind of physical capital serving the production process of a sport event but may also be directed to the socialization of a sport, thus also becoming social infrastructures with a high publicness rate. The other element that defines sport activities is, on the one hand, the unfolding of major events (championships, Olympic Games, and international competitions) and, on the other hand, the presence at the local level of widespread amateur and recreation sports having the capacity to contribute to the social welfare. The availability of space and infrastructure to support noncompetitive and recreational activities has a positive impact not only upon physical well-being, which results from participation in sports, but also upon psychological wellness. The sportiness rate has a significant impact upon people's life expectancy and morbidity rate. An increase in investment in popular sports results in savings in the healthcare sector, with a decrease in per capita healthcare spending. It is not just infrastructures that determine sport activities; sport is also made up of major events that attract tourism, of championships and sporting events that through the sale of rights and advertising are an important element for the economies of individual states. And sport has also a social dimension, one in which recreational and competitive aspects are inseparably linked. These aspects are arguably less important in terms of turnover, but very important from the point of view of social cohesion, standing as popular activities that counterbalance the business of the great events. And yet, policy makers often underestimate their significance, hence the insufficient allocation of financial resources in this direction. The result of this vicious circle is that often, due to the difficulty of finding resources to carry out their activities, small local initiatives easily fall prey to illegal organizations that use them to increase their power on a given geographical area (see D. Marino and P. Stilo's contribution to this volume).

Volunteering and professionalism are two sides of the sport medal that are forced to live together and fight for resources.

In such a complex and diverse sector, it is difficult to plan, especially if administrative jurisdiction is contended between national and local governments. The world of sport is one of those areas most affected by the lack of coordination between different levels of governance, state prerogatives, and regional priorities. Therefore, any variance in sport activity rates among regions is nothing else than the result of lack of coordination, which, in turn, prevents the efficient allocation of resources.

## 14.2 The Situation in Europe

According to the 2014 Eurobarometer survey, 42% of Europeans do not practice sports. This percentage has increased by three percentage points compared to the 2009 survey results (from 39% to 42%). Only 41% of those surveyed practice sports at least once a week, with an increase of one percentage point from the previous survey. Forty-eight percent of respondents engage in other physical activities, for recreational reasons or for reasons not connected to sports, like cycling for commuting purposes, dancing, or gardening, at least once a week.

In almost all European countries, young men are more active than young women, and adult men are more active than adult women: 45% of men engaged in physical activity at least once a week, compared to 37% of women. In addition, 37% of men compared to 47% of women declared that they never engaged in physical activity. Another alarming problem is the level of inactivity in young children. The period between childhood and adolescence is a particularly important phase for the development of motor skills.

As for the policies aimed to promote sports, we have two diametrically opposed approaches in Europe. The Nordic countries, like Germany, Austria, or the Netherlands, adopt an approach whereby sport policies are largely based on national strategies that marry sport activities with the economic pursuits in other sectors that are traditionally very distant from sport. Governments have pledged to link sports initiatives with aspects related to culture, environment, health, and prevention, as well as the world of childhood, welfare, and education. In this approach, sport becomes an essential element of the everyday lifestyles of citizens. It is an approach to sport activities that could be called universal and inclusive. These countries commit many resources to informal sports, with a particular focus on diversity in sport, as well as planning and incentives for the disabled population and socially vulnerable groups.

The implementation of these policies in the Nordic countries is entrusted to local partnerships operating within an efficient multilevel governance system among municipalities, central government, local organizations, and private sector. Germany, Austria, and the Netherlands are on the same wavelength in terms of approach and adopt the same policy levers to which they add specific elements of urban planning.

The lack of coordination between national and local entities could be one of the reasons why the Mediterranean countries have difficulty in building a sport offer model that is able to meet the needs of individuals and local contexts. Italy lacks a structured national sport policy, as well as an independent body for the comprehensive promotion and coordination of policies across the country. Greece, which does not even have a monitoring and national health surveillance system, has yet to develop measures that encourage physical activity among its citizens, nor has it ever crafted national recommendations on physical activity and health.

The Central European countries show greater attention to policies compared to their Southern counterparts, even if the latter are aligned with the continental average. An emerging feature for this group of countries is the substantial absence



of policies focused on the promotion of sports at the national level. Slovakia, Romania, Bulgaria, Poland, and the Czech Republic have yet to establish national guidelines that encourage the dissemination of sport activities among their population.

### 14.3 The Case of Italy

According to Eurostat, in Italy, the added value of the sport industry is estimated at 4.5 billion euro, resulting in a turnover of 14 billion euro, a number that, though not so high, demonstrates a degree of consistency in this sector in terms of economic performance. The employment rate in the sport sector (sport facilities, instructors, technicians, etc.) is equal to 0.54%, which, in terms of numbers, means approximately 120,000 employees. This employment rate was 33% lower than the European average, which is equal to 0.72%.

About 35,000 business enterprises are directly related to sports, with a number of employees that exceeds 100,000 units. To complete the picture of sport activities in Italy, we must also include the participation rate of 33.3% which corresponds to about 20 million people. Only 21.6% of the resident families allocated a portion of their disposable income to sports; the average monthly expenditure for sport activities is 48 euro or 1.4% of total spending. These data demonstrate, on the one hand, the possibility of developing margins for the Sport industry

sport industry that can grow in terms of added value, turnover, and employment. But, at the same time, it highlights a substantial marginalization of sport activities in relation to the interests of residents, which, in turn, leads to incorrect lifestyles and negative effects on health.

### 14.4 The Concept of Sport as Social Capital

Sport is a privileged context through which it is possible to promote capacity-building processes of citizens and local communities, as well as sociability and the enhancement of social cohesion. Since the times of ancient Greece, sport and, in particular, the Olympic Games served as social glue whose benefit, among others, was also to limit conflicts. In the modern era, the role of sport as a community development tool has been widely shown. Sport, therefore, appears as an important expression of the social capital. Putman (2000) describes social capital as a “sociological superglue,” which allows the harmonious development of social relations among people who come from different social, economic, and cultural environments. It is an element that is able to create network links between individuals or groups that share similar features. Sport activities are, therefore, a privileged way of developing this form of social capital through the growth of a sense of identity, as well as support, solidarity, and belonging. Indeed, sport activities are strongly linked

to the future of our society, as well as the integral development that implies encounters among people and respect for different identities.

Social capital and sport are inextricably linked by factors that influence human behavior. The role of sport policies as a determinant of the Equitable and Sustainable Well-being is by now widely recognized, and, by highlighting the geographical gaps in sport activities, this article wants to highlight how these gaps, at least at first sight, coincide with those of equitable and sustainable nature and of social capital disparities in Italy.

## 14.5 Data Processing: Selection of Primary Indicators and Construction of Synthetic Indices

The aim of this study was to investigate the presence of geographical differences in sport activities among the Italian regions. For this purpose, we created a database structured as a matrix and containing a set of variables invested with great descriptive power. The identification of profoundly marked geographical differences can be an element that can serve as the starting point for a whole series of economic policy considerations.

We processed the data matrix relating to regions into three progressive steps:

- (a) Selection of a set of basic indicators on the basis of an ad hoc evaluation model based on the existence of quality requirements
- (b) Calculation of synthetic indices (pillars), making use of the methodology proved more appropriate to obtain actionable and analytical guidance on sport in the Italian regions
- (c) Development of a final composite index as a more immediate empirical evidence on the degree of “sportiness” of the Italian regions

Missing values were defined with the hot-deck method and, where not possible, with the average value of Italy.

## 14.6 Synthesis Methodology

The approach we used involves the construction of pillars by the aggregation of primary indicators. Both pillars and primary indicators were considered non-replaceable.

The choice of the synthesis method is based on the assumption of a formative type of measurement model,<sup>1</sup> in which we assumed that the primary indicators are not replaceable, namely, that they do not compensate each other.

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<sup>1</sup>Istat (2015), *Bes 2015 – The Equitable and Sustainable Well-being in Italy*, pp. 29–30.

The exploratory analysis of the input data was performed by calculating mean, standard deviation, and frequency, correlation matrix, and analysis of principal components. Being a non-compensatory approach, simple aggregation of the primary indicators was carried out using the correct arithmetic average with a penalty proportional to the “horizontal” variability.

The normalization of the primary indicators took place by conversion into indices in relation to the variation range (*min-max*).

The assignment of weights to each primary indicator followed a subjective approach, opting for the same weight to each of them. Since, in some cases, the primary indicators showed different polarity, it was necessary to reverse the sign of the negative ones by linear transformation.

For the synthetic indicator calculation, we used the *Adjusted Mazziotta-Pareto Index* (AMPI) synthesis method, which consists in the *min-max* standardization of primary indicators and in the aggregation by arithmetic mean penalized by the “horizontal” variability of the indicators themselves. In practice, the compensatory effect of the arithmetic mean (*average effect*) is corrected by adding to the average a factor (*penalty coefficient*) which depends on the variability of the normalized values of each unit (called *horizontal variability*), namely, by the variability of the indicators compared to the values of reference used for the normalization.

The synthetic index of the *i*-th unit, which varies between 70 and 130, is obtained by applying, with negative penalty, the *correct version* of the *penalty method for variation coefficient* (AMPI<sup>+/-</sup>), where

$$AMPI_i^- = M_{ri} - S_{ri}cv_i \quad (14.1)$$

where  $M_{ri}$  and  $S_{ri}$  are, respectively, the arithmetic mean and the standard deviation of the normalized values of the unit *i* indicators and  $cv_i = S_{ri} / M_{ri}$  is the coefficient of variation of the normalized values of the indicators of the unit *i*.

The correction factor is a direct function of the coefficient of variation of the normalized values of the indicators for each unit, and, with the same arithmetic mean, it allows penalizing units that have an increased imbalance among indicators, pushing downward the index value (the lower the index value, the lower the level of creative economy).

This method meets all the requirements for the synthesis of well-being<sup>2</sup>:

- Comparability in space and time
- Non-replaceability of elementary indicators
- Simplicity and transparency of computation
- Immediate use and interpretation of results
- Reliability of achieved results

In order to assess the reliability of the method identified and, therefore, improve decision-making, we also carried out an influence analysis in order to verify if and

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<sup>2</sup>Istat, (2015), Bes 2015 – The Equitable and Sustainable Well-being in Italy, pp. 50–51.

how aggressively the composite index rankings change following the elimination of a primary indicator from the initial set, analyzing, then, the indicators that “weigh” more.

The analysis was conducted using the *COMIC* (COMposite Indices Creator) software, developed in ISTAT, which allows calculating synthetic indices and building rankings, and, in turn, easily comparing different synthesis methods to select the most suitable, and writing an effective result report.

The indicators used for the synthetic index were<sup>3</sup>:

- (a) Persons of age 3 and older who practice sports with continuity (for 100 persons of age 3 and older in the same area)
- (b) Persons of age 3 and older who practice sports intermittently (for 100 persons of age 3 and older in the same area)
- (c) Persons of age 3 and older who only practice some physical activity (for 100 persons of age 3 and older in the same area)
- (d) Persons of age 6 and older who have attended live sport events in person by region (*for 100 persons in the same area*)
- (e) Number of local units of active enterprises of institutions and sporting organizations
- (f) Number of managers of local units of active enterprises (average annual values) of institutions and sporting organizations
- (g) Number of local units of active enterprises in sport clubs
- (h) Number of managers of local units of active enterprises (average annual values) in sport clubs
- (i) Number of local units of active enterprises in the management of multifunction sport facilities
- (j) Number of managers of local units of active enterprises (average annual values) in the management of multifunction sport facilities

## 14.7 Results of Data Processing

Table 14.1 shows a large variability especially for managers of sport clubs and multifunction facilities, while Table 14.2 showed significant correlations between all indicators analyzed.

The influence analysis describes the indicators that most influence the composition of rankings in creative provinces. Analyzing Table 14.3, all variables “weigh” the same way; likewise, among them, the indicator for people of age 3 and older who practice some physical activity is only slightly greater than others (mean 2.300 and standard deviation 2.150).

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<sup>3</sup><http://dati.istat.it>

**Table 14.1** Mean, standard deviation, and frequency – “creative” indicators

| Statistics         | Var1   | Var2  | Var3  | Var4   | Var5  | Var6    | Var7    | Var8    | Var9   | Var10  |
|--------------------|--------|-------|-------|--------|-------|---------|---------|---------|--------|--------|
| Mean               | 23.005 | 8.93  | 28.25 | 25.985 | 78.4  | 170.49  | 191.15  | 369.98  | 50.15  | 304.95 |
| Standard deviation | 5.466  | 3.133 | 5.731 | 3.987  | 92.38 | 206.604 | 178.557 | 359.755 | 56.169 | 310.85 |
| Frequency          | 20     | 20    | 20    | 20     | 20    | 20      | 20      | 20      | 20     | 20     |

**Table 14.2** Correlation matrix between indicators

| Indicators | Var1  | Var2   | Var3  | Var4   | Var5  | Var6  | Var7  | Var8  | Var9  | Var10 |
|------------|-------|--------|-------|--------|-------|-------|-------|-------|-------|-------|
| Var1       | 1.000 |        |       |        |       |       |       |       |       |       |
| Var1       | 0.721 | 1.000  |       |        |       |       |       |       |       |       |
| Var1       | 0.446 | 0.215  | 1.000 |        |       |       |       |       |       |       |
| Var1       | 0.724 | 0.693  | 0.362 | 1.000  |       |       |       |       |       |       |
| Var1       | 0.380 | 0.020  | 0.302 | -0.039 | 1.000 |       |       |       |       |       |
| Var1       | 0.345 | -0.064 | 0.351 | -0.042 | 0.912 | 1.000 |       |       |       |       |
| Var1       | 0.172 | -0.019 | 0.189 | -0.115 | 0.930 | 0.827 | 1.000 |       |       |       |
| Var1       | 0.186 | 0.023  | 0.244 | -0.120 | 0.914 | 0.808 | 0.991 | 1.000 |       |       |
| Var1       | 0.322 | 0.037  | 0.251 | -0.072 | 0.975 | 0.867 | 0.910 | 0.892 | 1.000 |       |
| Var1       | 0.188 | -0.059 | 0.286 | -0.217 | 0.916 | 0.801 | 0.912 | 0.914 | 0.908 | 1.000 |

**Table 14.3** Influence analysis: mean and standard deviation for the shifts of the ranking

| Indicator          | Mean  | Standard deviation |
|--------------------|-------|--------------------|
| Var1               | 1.900 | 2.000              |
| Var1               | 1.600 | 1.850              |
| Var1               | 2.300 | 2.150              |
| Var1               | 1.400 | 1.710              |
| Var1               | 1.700 | 1.580              |
| Var1               | 1.800 | 1.470              |
| Var1               | 1.700 | 1.730              |
| Var1               | 1.700 | 1.820              |
| Var1               | 1.600 | 1.710              |
| Var1               | 1.700 | 1.730              |
| Mean               | 1.740 | 1.780              |
| Standard deviation | 0.224 | 0.183              |

*Var1* persons of age 3 and older who practice sports with continuity (for 100 persons of age 3 and older in the same area), *Var2* persons of age 3 and older who practice sports intermittently (for 100 persons of age 3 and older in the same area), *Var3* persons of age 3 and older who only practice some physical activity (for 100 persons of age 3 and older in the same area), *Var4* persons of age 6 and older who have attended live sport events in person by region (for 100 persons in the same area), *Var5* number of local units of active enterprises of institutions and sporting organizations, *Var6* number of managers of local units of active enterprises (average annual values) of institutions and sporting organizations, *Var7* number of local units of active enterprises in sport clubs, *Var8* number of managers of local units of active enterprises (average annual values) in sport clubs, *Var9* number of local units of active enterprises in the management of multifunction sport facilities, *Var10* number of managers of local units of active enterprises (average annual values) in the management of multifunction sport facilities

## 14.8 Some Policy Implications

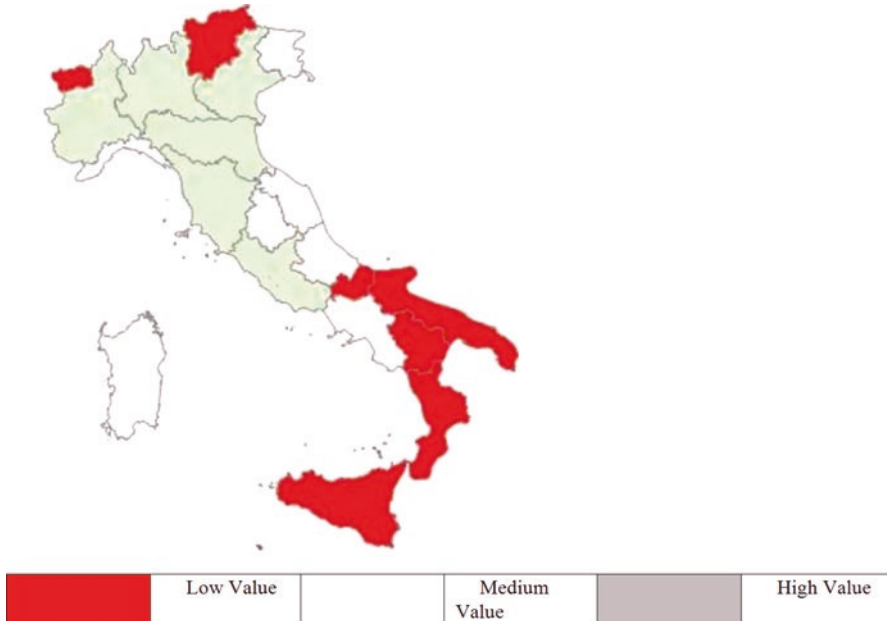
The graphic representation of the final synthetic index value (Table 14.4 and Fig. 14.1) points to a South/Center-North dichotomy which is quite common in the analysis of the Italian economy.

In particular, the best performances are those found in Lombardy, Emilia-Romagna, and Veneto, especially for the presence of a large number of sport facilities and employees; the Valle d'Aosta region is last despite a good number of people of age 3 years and older who practice sports regularly.

The investment in sport activities has never been conceived as a tool to remedy regional differences pertaining to development. Sport facilities have too often been considered second-class infrastructures, less important than roads and railways and less important than theaters and museums, and this has severely limited the development of sound infrastructure policies aimed to rebalance social disparities among regions. In addition, we also have to highlight that local governments have few tools and resources to intervene and, at a time of economic crisis and stiffening of public

**Table 14.4** Sport synthetic index per region

| Region                            | Synthetic Index |      |
|-----------------------------------|-----------------|------|
|                                   | Value           | Rank |
| Lombardia                         | 64.854          | 1.0  |
| Emilia-Romagna                    | 57.207          | 2.0  |
| Veneto                            | 57.073          | 3.0  |
| Piemonte                          | 56.560          | 4.0  |
| Toscana                           | 56.032          | 5.0  |
| Lazio                             | 55.929          | 6.0  |
| Campania                          | 52.688          | 7.0  |
| Marche                            | 52.645          | 8.0  |
| Liguria                           | 52.206          | 9.0  |
| Friuli-Venezia Giulia             | 51.774          | 10.0 |
| Abruzzo                           | 51.715          | 11.0 |
| Umbria                            | 51.375          | 12.0 |
| Sardegna                          | 51.044          | 13.0 |
| Puglia                            | 50.799          | 14.0 |
| Trentino Alto,<br>Adige/Sudtirolo | 50.682          | 15.0 |
| Sicilia                           | 50.413          | 16.0 |
| Calabria                          | 50.383          | 17.0 |
| Molise                            | 50.211          | 18.0 |
| Basilicata                        | 49.843          | 19.0 |
| Valle d'Aosta                     | 49.691          | 20.0 |
| <b>ITALIA</b>                     | <b>100.000</b>  |      |



**Fig. 14.1** Territorial distribution of the sport synthetic index for the Italian regions

budgets, the first infrastructures subject to cuts or replanning are essentially those devoted to sports.

The objectives of sport policies pursued can be summarized as follows:

- Construction, upgrading, retrofitting, and improvement of sport facilities
- Activities for the promotion of sport activities and sports organizations participating in events, as well as national, international, and interregional championships
- Contributions, incentives, and financing to companies, agencies, and sport clubs for activities and events aimed at the dissemination of sports

In the face of particularly significant geographical differences, it is necessary to intervene at the national level in order to move simultaneously in two directions. First, greater coordination of local and regional policies is required; second, direct interventions are necessary to bridge regional disparities through activities focused mainly in Southern Italy.

## Appendix

| Nome Regione          | Year | Weight | Var1 | Var2 | Var3 | Var4 | Var5 | Var6   | Var7 | Var8   | Var9 | Var10  |
|-----------------------|------|--------|------|------|------|------|------|--------|------|--------|------|--------|
| Piemonte              | 2014 | 1      | 23.3 | 11.5 | 32.7 | 24.3 | 137  | 311.6  | 261  | 553.3  | 115  | 639    |
| Valle d'Aosta         | 2014 | 1      | 30.2 | 14.5 | 25.2 | 30.2 | 3    | 17.4   | 9    | 13.5   | 4    | 9.3    |
| Liguria               | 2014 | 1      | 23.8 | 6.6  | 31.6 | 22.9 | 50   | 89.8   | 103  | 181    | 20   | 420.3  |
| Lombardia             | 2014 | 1      | 28.5 | 9.4  | 32.6 | 25.7 | 371  | 772.5  | 801  | 1578.2 | 210  | 1118.2 |
| Trentino-Alto Adige   | 2014 | 1      | 34.6 | 17.7 | 30.1 | 37.5 | 36   | 43.2   | 120  | 245.1  | 16   | 38.8   |
| Veneto                | 2014 | 1      | 24.8 | 10.8 | 36.4 | 25.5 | 152  | 246.6  | 342  | 746.4  | 114  | 631.3  |
| Friuli-Venezia Giulia | 2014 | 1      | 24.8 | 12.5 | 34.6 | 29.2 | 16   | 41.9   | 102  | 211.9  | 13   | 113.7  |
| Emilia-Romagna        | 2014 | 1      | 26.1 | 8.7  | 33.0 | 23.9 | 173  | 321.2  | 327  | 723.5  | 85   | 805.6  |
| Toscana               | 2014 | 1      | 26.2 | 6.7  | 32.7 | 27.1 | 139  | 617.1  | 224  | 388.8  | 76   | 350.4  |
| Umbria                | 2014 | 1      | 23.8 | 8    | 26.8 | 27.2 | 20   | 81     | 62   | 138.7  | 11   | 75.5   |
| Marche                | 2014 | 1      | 24.1 | 8.5  | 31.5 | 26.5 | 63   | 117.8  | 117  | 262.4  | 38   | 60.9   |
| Lazio                 | 2014 | 1      | 27.9 | 8.2  | 21.4 | 27.8 | 199  | 293.2  | 289  | 431.4  | 140  | 553.2  |
| Abruzzo               | 2014 | 1      | 21.6 | 6.1  | 27.4 | 26   | 28   | 93.4   | 115  | 217.3  | 21   | 136.6  |
| Molise                | 2014 | 1      | 19   | 7.1  | 28.8 | 23.8 | 3    | 3.1    | 24   | 25.1   | 5    | 6.1    |
| Campania              | 2014 | 1      | 12.7 | 5.2  | 26.9 | 25.4 | 61   | 117.5  | 322  | 599.2  | 46   | 456.1  |
| Puglia                | 2014 | 1      | 18   | 8.6  | 16.7 | 20   | 46   | 71.5   | 197  | 388.1  | 37   | 212.4  |
| Basilicata            | 2014 | 1      | 16.5 | 5.2  | 26.9 | 21   | 8    | 42.1   | 30   | 42.3   | 4    | 13.9   |
| Calabria              | 2014 | 1      | 15.5 | 7.8  | 22.3 | 23.5 | 8    | 48.6   | 86   | 124.7  | 10   | 131    |
| Sicilia               | 2014 | 1      | 15.9 | 7.5  | 15.4 | 21.3 | 31   | 52.5   | 213  | 408.3  | 27   | 257.4  |
| Sardegna              | 2014 | 1      | 22.8 | 8    | 32   | 30.9 | 24   | 27.8   | 79   | 120.4  | 11   | 69.4   |
| Italia                | 2014 | 1      | 23   | 8.6  | 28.2 | 25.2 | 1568 | 3409.6 | 3823 | 7399.3 | 1003 | 6099   |

Indicators used for the synthetic index:

*Var1* persons of age 3 and older who practice sports with continuity (for 100 persons of age 3 and older in the same area), *Var2* persons of age 3 and older who practice sports intermittently (for 100 persons of age 3 and older in the same area), *Var3* persons of age 3 and older who only practice some physical activity (for 100 persons of age 3 and older in the same area), *Var4* persons of age 6 and older who have attended live sport events in person by region (for 100 persons in the same area), *Var5* number of local units of active enterprises of institutions and sporting organizations, *Var6* number of managers of local units of active enterprises (average annual values) of institutions and sporting organizations, *Var7* number of local units of active enterprises in sport clubs, *Var8* number of managers of local units of active enterprises (average annual values) in sport clubs, *Var9* number of local units of active enterprises in the management of multifunction sport facilities, *Var10* number of managers of local units of active enterprises (average annual values) in the management of multifunction sport facilities



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# Chapter 15

## Profiling the Typologies of Nature Sports Organizations in Portugal

Ricardo Melo and Rui Machado-Gomes

**Abstract** Nature sports are an increasingly popular form of sports developed in natural or rural areas and have become a significant focus of the tourism and leisure industries around the world. This popularity has been creating an increased demand and, consequently, a diverse supply. However, few studies have investigated this sport tourism segment and even fewer have studied the organizations that have been developing these activities. This study identifies the typological diversity of Portuguese nature sports organizations (NSO). The study was conducted on mainland Portugal, and the data was collected by applying an online survey to a sample of NSO ( $n = 166$ ). Five typologies of NSO were identified, based on their supply (the number and typology of nature sports activities), the type of organization (sport tourism companies, sports clubs and sport-recreation associations) and the organization of the activities (courses and/or participant training facilitated by technicians, training and competitions, challenges and events organization and others). Furthermore, the five typologies were characterized by their general profile (legal status, territorial scope of operation, age and size), supply (the main type of technicians' training, services development and the main promotion and distribution channels), demand (number of participants per year, age, gender, geographical origin, experience level and frequency), perception of the repercussions of the impact of nature sports on sustainable local development and the NSO sustainable behaviour index. Statistical differences between the characteristics of each typology were analysed. Some implications for nature sports policies and management are also discussed.

**Keywords** Nature sports • Nature sports organizations • Profile • Sports management • Supply and demand • Sustainable behaviour • Typology

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## 15.1 Introduction

In recent decades, the field of nature sports has received increasing attention from academics and policymakers. Nature sports comprise a group of sports activities that are developed and experienced in natural or rural areas; they range from formal to informal practices and may contribute to sustainable local development (Melo and Gomes 2017). Nature sports are practised in different natural contexts including in the air (paragliding, hang-gliding, etc.), on land (MTB, rock climbing, trekking, etc.) and in water (kayaking, sailing, surfing, windsurfing, etc.) and are usually developed in places away from residential areas and far from urban centres, necessitating travel and tourism (accommodation, food, purchase of services and equipment, etc.) (Melo and Gomes 2016b). Therefore, nature sports are being incorporated into the sport tourism sector. This relationship between sport and tourism is evident in the economic impact generated in these touristic destinations (Melo and Gomes 2016a).

The tourism, leisure and recreation industry is important for many countries in the industrialized world (Byers and Slack 2001; Martin and Palakshappa 2005). Of the world's top 500 companies, 54 are related to leisure industry organizations (Byers and Slack 2001). The outdoor recreation industry is a broader industry component of leisure and plays a significant role in the economies of developed countries (Martin and Palakshappa 2005). It has been demonstrated that most companies operating in the nature sports sector are small or micro-companies (Betrán and Betrán 1999; Bouhaouala 2008; Costa 2005), but these small businesses play very important economic and social roles (Martin and Palakshappa 2005). They have become a major focus of this multimillion dollar tourism industry because they have (1) provided an important source of foreign income; (2) allowed the legitimate embodiment of the aspirations of many individuals, through the generation of self-employment; and (3) become an important source of change and innovation by creating new forms of revenue and new tax revenues (Martin and Palakshappa 2005).

Although nature sports are considered a growing phenomenon around the world, there is a lack of research and data about the organizations that are developing these activities. Therefore, this current research, which is the subject of this chapter, demonstrates the need to profile the typologies of NSO. This is an important instrument for identifying current players in the nature sports and sport tourism market and for recognizing added value products, as well as for analysing marketing and communication strategies. Thus, the main purpose of this chapter is to provide structured information about NSO operating in Portugal, by addressing the following research questions:

1. What are the actual NSO typologies operating in Portugal? What is the general profile of each typology?
2. How is the NSO typology supply composed? What are the differences in supply between the different NSO typologies?

3. Who demands nature sports within each NSO typology? Are there any demand differences between the different NSO typologies?
4. Which nature sports activities in the different NSO typologies have more potential to be developed?
5. What are the differences between the different NSO typologies in terms of the perception of the repercussions of the impact of nature sports on sustainable local development? Are there any differences in sustainable behaviours between the different NSO typologies?

This chapter is structured in the following way. The next section presents a literature review on nature sports organizations and nature sports and sustainable behaviours. The methodological approach is described in the third section, while the fourth section contains a detailed description of the statistical analysis and the results obtained, which are further discussed in Sect. 5. Conclusions are presented in the final section.

## **15.2 Nature Sports Organizations and Sports Management**

### ***15.2.1 Nature Sports Organizations***

A classification of organizations in the field of sports management was presented by Bayle (2007). This classification encompasses four levels. Sports field organizations are not a homogeneous set with the same legal status: they present in the form of associations, commercial enterprises and professional clubs. Upstream and downstream of the sports sector are the so-called economic activities related to sport. This group of activities, that economists refer to as the industry or sports sector, are heterogeneous: construction, industry, distribution, central or local administration of sports, education, communication, health, social action, etc. Public organizations (such as the Ministries and Secretariats of Education, Sport and Youth, as well as local authorities and their sports services) and private (commercial) organizations whose work is related to sport (manufacturers and distributors of sports goods, sports companies, sports media, sponsors, etc.) follow a logic of action (intention, systems of legitimacy) that is different from the sports movement present in the sports sector. The organizations of the sports movement (Level 1) belong to a common system with a historical, social and political logic, which amounts to a structure in its own right, according to a protectionist and regulatory scheme of national sports federations and international sports confederations. Level 2 is composed of other organizations in the sports sector, which constitutes most of the commercial companies in the sports sector: sports and leisure sports, sports and leisure events, etc. Level 3 encompasses organizations related to sport. Level 4 is more peripheral and brings together organizations that are not linked to sport in their own activities but use it as management support in, for example, their business communication

and strategy and marketing, through sponsorship, as well as in their management of human resources (company seminars, coaching of sporting experiences) and/or their social activities (sport within the company). Following this classification, only the organizations included in Levels 1 and 2 are organizations belonging to the field of sport.

In terms of the supply of sports activities, nature sports represent a complex case of sports organizations (Cunha 2007). These activities are simultaneously involved in the sports sector and the environmental sector (when developed in protected areas), as well as the tourism sector (when accompanied by travel and tourism consumption), especially in leisure time (Melo and Gomes 2016b). In terms of Portuguese law, NSO include clubs and sports societies, as well as other legal entities including commercial companies and even individual people (e.g. sport tourism companies).

Literature related to research on sports organizations is still scarce (Slack 2006) and this is even more significant in relation to organizations that promote nature sports.

Studies in Cataluña, Spain (Betrán and Betrán 1999; Viñuelas et al. 1995), analysed companies' nature sports supply, including the characterization of the demand and the social diffusion of these activities. These studies reported that the companies are almost all micro- and small companies, with a supply composed mainly of rafting, MTB, horse riding, trekking, canyoning and free flight; the demand is mainly composed of young males between 25 and 34 years, from the region of Cataluña.

In the area of Vercors in France, Bouhaouala (2008) developed a study about sport tourism companies, with a scope of micro-mentalities. This study allowed a segmentation of managers and small and micro-companies, highlighting four typologies of entrepreneurship that differed in management strategy, organizational choice and strategic orientation. The segments were named as (i) independent enthusiast, (ii) independent entrepreneur, (iii) administrative manager and (iv) patrimonial conservative. Also in France, Paget, Mounet and Guilhon (Paget et al. 2007) developed a study to characterize the micro-companies of sport and tourism services, identifying managers' strategies. The results showed that companies from sport and tourism present identical profiles to other companies described in management sciences.

In Portugal, several studies were conducted about touristic animation organizations (Costa 2005; Cunha 2006; Mota 2006; Moutinho 2008; Resende 2006). The main results showed that the companies are almost all micro-companies with a recent period of operation (mainly since 2000), generally directing their services towards the national market, with scarce qualification of the human resources. The activities of both public and private organizations are very similar despite the differences in scope of operation, according to the law in force. Melo and Gomes (2016b) characterized the NSO operating in Portugal and found differences between companies, sports clubs and associations (environmental, cultural, sporting, recreational and others), regarding their general profile and their supply and demand.

### ***15.2.2 Nature Sports Organizations and Sustainable Behaviours***

In recent years, there has been increased discussion about sustainability. This has created new and increased policy, practice and research activity around the behaviours of individuals and organizations, in order to reduce their impact on the natural environment (Young et al. 2015). Tourism is recognized as one of the main economic activities on the planet and its growth has been increasing in recent years. Nature sports have been following this trend. This sometimes leads to enormous pressure on touristic destinations, significantly impacting these territories and resulting in a complex process of interaction between tourists and the destinations, including the host communities (Brida et al. 2011; Nyaupane and Thapa 2004).

Sustainable tourism development is a process with a triple action:

- (a) Environmental sustainability—allowing an appropriate use of environmental resources and the maintenance of ecological processes to ensure a balance between development and the preservation and conservation of the natural heritage and biodiversity
- (b) Economic sustainability—ensuring a viable economy and long-term operations that sustain well-distributed socio-economic benefits for all stakeholders, including stable employment, income-generating opportunities, social services for host communities, a contribution to poverty reduction and economic efficiency without future growth being jeopardized
- (c) Sociocultural sustainability—ensuring that the control and management of the available resources are locally effectuated by native people, respecting their sociocultural authenticity, in order to conserve built and living cultural heritage and its traditional values, as well as to contribute to intercultural understanding and tolerance (Brito 2004; UNEP & WTO 2005; WTO 1993)

According to Brito (2004), the relationship between the three dimensions is achieved by ensuring environmental preservation, giving autonomy to local communities, respecting the values and culture of origin, strengthening community identity, safeguarding economic development through the management of available resources and ensuring their use by future generations.

Impact is regarded as the direct, indirect or induced consequences of the tourism industry (and nature sports activities) and can be expressed as positive or negative (Mathieson and Wall 1996). The impact of tourism corresponds to subsequent changes in those destinations (Ruschmann 2008). Nature sports activities, as touristic products, act as change agents and have an impact on regional economic conditions, social institutions and environmental quality (Mings and Chulikpongse 1994). Accordingly, the impact of nature sports depends on the nature of the societies within which they occur (Ruschmann 2008) and results, in general, from the social, economic and cultural differences between the local population and external agents, such as nature sports participants and organizations (WTO 1993). The potential



**Table 15.1** Potential impacts of nature sports and activities related to sport tourism, within the sustainability of local development

| Dimensions    | Positive  | Negative   |
|---------------|---|--|
| Environmental | Development of plans and programmes for the preservation of natural area<br>Investment in measures of nature protection<br>Promotion of direct contact with nature  | Noise and visual pollution<br>Soil erosion<br>Overcrowding and congestion<br>Excessive water consumption<br>Water and air pollution<br>Natural landscape destruction<br>Fauna and flora destruction<br>Deterioration of monuments and historic sites' landscape  |
| Economic      | Increases the inhabitants' income<br>Job creation<br>Positive modification of the socio-economic structure<br>Industrialization of the regional economy base  | Funds transference from other sectors such as health and education<br>Opportunity costs<br>Overdependence on tourism<br>Inflation<br>Real estate speculation<br>Negative modification of the socio-economic structure<br>Sports accidents that create a negative image for destinations  |
| Sociocultural | Positive modification of the sociocultural structure (education, culture, profession, etc.)<br>Enhancement and preservation of historic patrimony, cultural heritage and handicrafts<br>Increase in local pride and community spirit<br>Increasing and improving accessibility<br>Construction of basic infrastructures (public water supply, sanitation, electricity network, etc.)<br>Creation of new facilities, attractions and leisure infrastructures<br>Increase in the level of interest and local participation in activities associated with the events | Demonstration effect<br>Intense movements (neocolonialism)<br>Social conflicts (including religious)<br>Deviant behaviours (prostitution, crime, vandalism, etc.)<br>Handicraft mis-characterization<br>Cultural events vulgarization<br>Cultural arrogance<br>Heritage destruction<br>Economic exploitation of the local population to meet the ambitions of the political elite<br>Use of tourism as a way of legitimizing unpopular decisions |

*Source:* Adapted from Bessy and Mouton (2004), Hall and Page (2006), Holloway (1998), Ignarra (2003), Mathieson and Wall (1996) and Ruschmann (2008)

positive and negative impacts of nature sports and activities related to sport tourism within the three dimensions of sustainability are listed in Table 15.1.

Therefore, the extent of these impacts depends not only on the quantity but also on the type (and corresponding behaviour) of nature sports participants travelling to that destination for their practices (Mathieson and Wall 1996). NSO are also

**Table 15.2** Nature sports organizations' sustainable behaviours

|  |
|--|
| Developing programmes that encourage nature sports participants to participate in cultural activities in the geographical areas of practice              |
| Developing programmes that contemplate the use of facilities and leisure spaces of local communities (theatres, cinema, libraries, swimming pools, etc.) |
| Encouraging inhabitants to practice nature sports  |
| Encouraging inhabitants to preserve the spaces of nature sports practices  |
| Collecting garbage produced during activities  |
| Collecting abandoned trash left at the spaces of nature sports practices   |
| Raising awareness of participants' good environmental practices  |
| Complying with the rules of conduct for the preservation of fauna and flora  |
| Contributing financially to local environmental protection   |
| Denouncing wrong practices or attacks against nature   |
| Promoting local trade spaces (restaurants, shops, etc.)  |
| Promoting local hotels and accommodation   |
| Recruiting inhabitants from the destinations of nature sports practices and/or from the headquarters of the organization, to work in the organization    |

*Source:* Adapted from Bessy and Mouton (2004), Hall and Page (2006), Holloway (1998), Ignarra (2003), Mathieson and Wall (1996) and Ruschmann (2008)

important because, in mediating between nature sports participants, local inhabitants and the locality itself, they can mitigate or increase negative and positive local impacts (see Table 15.2).

Identifying sustainable behaviours in tourism, and in nature sports in particular, is relevant because it means attracting practitioners and organizations who are practising more sustainable behaviours, as well as modifying those who presently practise low levels of sustainable behaviours (Powell and Ham 2008; Shamsub and Lebel 2012).

## 15.3 Methodology

### 15.3.1 Selected Nature Sports

Analyses of several studies (Carvalhinho 2006; DECO 2008) and the Portuguese law (Ministério das Cidades Ordenamento do Território e Ambiente, 2003) allowed the identification of 23 distinct activities selected to be part of this study: (1) equestrian activities, (2) bodyboarding, (3) MTB, (4) kayaking, (5) canyoning, (6) rock climbing, (7) caving, (8) skiing, (9) kitesurfing, (10) scuba diving, (11) mountaineering, (12) orienteering, (13) trekking, (14) rafting, (15) rowing, (16) skimmming, (17) snowboarding, (18) surfing, (19) archery and crossbow, (20) sailing, (21) free flight, (22) windsurfing and (23) multi-activities (e.g. adventure running, adventure challenges, etc.).

### ***15.3.2 Sampling and Questionnaire***

This study used an online survey (in the form of a questionnaire) which was applied to managers from NSO facilitating nature sports activities on mainland Portugal. The NSO sample used in this study was defined according to the following criteria: (a) representativeness by the type of NSO, considering the different types of organizations (sport tourism companies, sports clubs and associations); (b) representativeness by the 23 nature sports activities defined; (c) representativeness by NSO headquarters, taking into account the 18 districts of mainland Portugal.

The questionnaire was composed of a total of 56 questions, including the following sections: (a) the general profile of the organization, (b) the characterization of their supply regarding nature sports, (c) the characterization of their demand, (d) the perception of the repercussions of the impact of nature sports on sustainable local development and (e) the NSO sustainable behaviour index. The answering time was estimated to be an average of 20 min. Pretesting application and expert examination were used as validation procedures (Hill and Hill 2008). The questionnaire was self-administered. NSO managers were previously contacted by phone to explain the study's objectives and the structure of the questionnaire. For those NSO managers who agreed to participate in the study, the questionnaire was sent by e-mail as an electronic link. A total of 166 valid surveys were considered, which corresponds to a sample of 11% of the total number of NSO.

### ***15.3.3 Segmentation Process and Profiling***

Legal status (company or association), main organizational scope (courses and/or participant training, facilitated by technicians, training and competitions and challenges and events organization) and number and type of activity (competitive or recreational) were used to segment the NSO. The typologies obtained were then named according to those criteria and profiled in terms of general profile, supply, demand, perception of sustainability impacts and behaviours within the geographical area of the practices.

Statistical analysis was performed using IBM SPSS (version 20), and statistical significance was set at *p-value* <0.10. Descriptive statistics were first conducted to characterize the five different typologies, using means and standard deviations for continuous variables and percentages for nominal and ordinal variables. Chi-square ( $\chi^2$ ) and one-way ANOVA tests were used to evaluate differences between groups, both to assess predictive validity and to profile the clusters. Tests assumptions were verified and are generally satisfied (Maroco 2010; Pestana and Gageiro 2003).

A sustainable behaviour index was created to compare the sustainable behaviours of the different NSO typologies. The index was developed through the addition of the answers to the 13 statements about sustainable behaviours (see Table 15.2). To an affirmative answer (yes), one point was attributed; to a negative

(no) answer, zero points were attributed. The addition of all behaviours results in a classification between 0 and 13 points (total number of behaviour statements). To achieve a sustainable behaviour index on a scale between 0 and 100, the obtained value is multiplied by 100 and finally divided by 13.

## 15.4 Results

### 15.4.1 NSO Typologies

Results reveal the existence of five distinct typologies of NSO (Table 15.3).

The first typology (18.7% of NSO) was named “Generalist Companies” because it comprised business companies with a diversity of supply (usually with five or more nature sports activities), mainly based on kayaking, trekking and multi-activities, generally facilitated by technicians.

**Table 15.3** Typologies of nature sports organizations

| Typologies                  | Description   | N                     | %  |    |      |
|-----------------------------|---|-----------------------|--|----|------|
| 1. Generalist Companies     | Business organizations, with a diversity of supply (usually five or more nature sports activities), mainly based on kayaking, trekking and multi-activities | 31                    | 18.7   |    |      |
| 2. Specialized Companies    | Specialized business organizations based on the supply of two or three nature sports activities   | Surfing activities    | Surfing, bodyboarding and/or skimming, although they may also supply other activities (e.g. MTB) | 23 | 13.9 |
|                             |   | Wind/water activities | Sailing, windsurfing and/or kitesurfing  | 3  | 1.9  |
|                             |   | Diving activities     | Diving, although they may also supply other activities   | 11 | 6.6  |
|                             |   | Mountain activities   | Mountaineering, trekking, rock climbing, MTB, free flight  | 7  | 4.2  |
| 3. Traditional Sports Clubs | Non-profit associations based mainly on sports competition and the organization of competitive events (e.g. MTB, orienteering and kayaking)                 | 45                    | 27.1   |    |      |
| 4. Sports Formation Clubs   | Non-profit associations based mainly on the provision of training courses for members (e.g. mountaineering, rock climbing, canyoning, diving and kayaking)  | 11                    | 6.6  |    |      |
| 5. Sports Recreation Clubs  | Non-profit associations based mainly on the supply of recreational activities (e.g. trekking, MTB, mountaineering and kayaking)                             | 35                    | 21.1   |    |      |
| <i>Total</i>                |   | <i>166</i>            | <i>100</i>   |    |      |

The second typology (26.6% of NSO) comprised business companies with a specialized supply (usually with no more than three nature sports activities) and, because of that, was named “Specialized Companies”. This typology was divided into four sub-typologies according to the type of nature sports activities supplied: (1) surfing activities (surfing, bodyboarding and skimmming), (2) wind/water activities (sailing, windsurfing and kitesurfing), (3) diving activities and (4) mountain activities (mountaineering, trekking, rock climbing, MTB and free flight).

The third typology (27.1% of NSO) was labelled “Traditional Sports Clubs” because it comprised non-profit associations with a reduced supply (usually with no more than three nature sports activities), based on competitive activities (e.g. MTB, orienteering and kayaking), and with an organizational scope driven by training and competition or by the organization of challenges and events.

The fourth typology includes non-profit associations with an organizational scope centred on the provision of training courses for members, and was named “Sports Formation Clubs”. This was the smallest group with only 6.6% of NSO. Their supply is mainly composed of mountaineering, rock climbing, canyoning, diving and kayaking.

The fifth typology (21.1% of NSO) was named “Sports Recreation Clubs” and encompassed non-profit associations with a supply centred on recreational activities (e.g. trekking, MTB, mountaineering and kayaking), facilitated by technicians or by the organization of challenges or events.

### 15.4.2 *Nature Sports Organizations’ Typology Characteristics*

Typology characterization was based on the general profile of NSO (Table 15.4), NSO supply (Table 15.5), NSO demand (Table 15.6), perception of the repercussions of the impact of nature sports on sustainable local development (Table 15.7) and the NSO sustainable behaviour index (Table 15.8).

NSO belonging to the first typology, the “Generalist Companies”, are micro-companies, with an average of 3.5 ( $\pm 5.4$ ) full-time and 6.1 ( $\pm 8.8$ ) part-time employees. They are mainly young ( $M = 9.4 \pm 5.9$  years) limited companies (58.1%), operating mostly at a regional level (35.5%). They are the NSO with the highest number of nature sports supply ( $8.0 \pm 3.8$ ), organizing activities that are mostly facilitated by technicians (74.2%). Technicians of this NSO have mainly been trained through technical courses (48.4%). They are the NSO that most (74.2%) uses segmentation criteria to develop their services, while the Internet is their main promotional channel, although they present a positive trend compared to the other organizations in terms of the promotion of their services through word of mouth (25.8%). They use direct distribution (54.8%) as the main selling channel, although the Internet is also commonly used (41.9%). The “Generalist Companies” demand comes from participants who are beginners (54.8%), mostly male (61.3%), adult individuals between 18–35 (58.1%) and 35–50 (38.7%) years old, with a negative

**Table 15.4** General profile of nature sports organizations

| Profile indicators                           | 1                    | 2                    | 3                    | 4                   | 5                   | Total | Statistical tests    |
|--|----------------------|----------------------|----------------------|---------------------|---------------------|-------|----------------------|
| <i>Legal form (%)</i>                        |                      |                      |                      |                     |                     |       | $\chi^2 = 167.814^a$ |
| Sole proprietor                              | 12.9                 | 31.0 <sup>b</sup>    | 0.0 <sup>c</sup>     | 0.0                 | 0.0 <sup>c</sup>    | 10.8  |                      |
| Individual limited liability company         | 9.7                  | 9.1                  | 0.0                  | 0.0                 | 0.0                 | 4.2   |                      |
| Single shareholder limited liability company | 16.1 <sup>b</sup>    | 13.6 <sup>b</sup>    | 0.0 <sup>c</sup>     | 0.0                 | 0.0                 | 6.6   |                      |
| Limited company                              | 58.1 <sup>b</sup>    | 38.6 <sup>b</sup>    | 0.0 <sup>c</sup>     | 0.0                 | 0.0 <sup>c</sup>    | 21.1  |                      |
| Non-profit association                       | 0.0 <sup>c</sup>     | 0.0 <sup>c</sup>     | 93.3 <sup>b</sup>    | 90.9 <sup>b</sup>   | 97.1 <sup>b</sup>   | 51.8  |                      |
| Others                                       | 3.2                  | 6.8                  | 6.7                  | 9.1                 | 2.9                 | 5.4   |                      |
| <i>Territorial scope of operation (%)</i>    |                      |                      |                      |                     |                     |       | $\chi^2 = 18,895^a$  |
| Local  | 25.8                 | 22.7                 | 20.0                 | 18.2                | 11.4                | 19.9  |                      |
| Regional                                     | 35.5                 | 43.2                 | 31.1                 | 18.2                | 42.9                | 36.7  |                      |
| National                                     | 25.8                 | 20.5                 | 46.7 <sup>b</sup>    | 36.4                | 22.9                | 30.1  |                      |
| International                                | 12.9                 | 13.6                 | 2.2 <sup>c</sup>     | 27.3                | 22.9                | 13.3  |                      |
| <i>Age</i>                                   |                      |                      |                      |                     |                     |       | $F = 5.708^a$        |
| Mean   | 9.4 <sup>3,4,5</sup> | 7.2 <sup>3,4,5</sup> | 18.9 <sup>1,2</sup>  | 20.9 <sup>1,2</sup> | 18.9 <sup>1,2</sup> | 14.0  |                      |
| Standard deviation                           | ±5.9                 | ±5.0                 | ±24.0                | ±13.2               | ±12.7               | ±15.5 |                      |
| <i>Employees</i>                             |                      |                      |                      |                     |                     |       | $F = 4.368^a$        |
| Full time (mean)                             | 3.5 <sup>3,5</sup>   | 2.5 <sup>3</sup>     | 0.2 <sup>1,2,4</sup> | 2.6 <sup>3</sup>    | 0.4 <sup>1</sup>    | 1.6   |                      |
| Standard deviation                           | 5.4                  | 5.5                  | 0.6                  | 6.5                 | 1.5                 | 4.6   |                      |
| Part time (mean)                             | 6.1 <sup>4,5</sup>   | 2.8                  | 1.8                  | 1.2 <sup>1</sup>    | 0.8 <sup>1</sup>    | 2.6   | $F = 3.881^a$        |
| Standard deviation                           | 8.8                  | 5.5                  | 6.2                  | 2.4                 | 2.3                 | 6.1   |                      |

Typologies names: (1) Generalist Companies, (2) Specialized Companies, (3) Traditional Sports Clubs, (4) Sports Formation Clubs, (5) Sports Recreation Clubs

<sup>a</sup>Significant at the 0.10 level

<sup>b</sup>SAR >1.96

<sup>c</sup>SAR <-1.96

<sup>1,2,3,4,5</sup>Differences between groups

trend in demand from individuals who are younger than 18 years old (3.2%). They are the NSO with the highest demand per year (51.6%), with more than 1000 participants, but with the lowest frequency (80.6%), usually no more than once per year. The geographical origin of the participants is at a national level (51.6%), with a positive trend for international level (22.6%). Managers of “Generalistic Companies” classify the repercussions of the positive impact of nature sports on sustainable local

**Table 15.5** Nature sports organization supply

| Supply indicators                              | 1                      | 2                  | 3                  | 4                | 5                    | Total | Statistical tests   |
|--|------------------------|--------------------|--------------------|------------------|----------------------|-------|---------------------|
| <i>Number of nature sports activities</i>      |                        |                    |                    |                  |                      |       | $F = 36.095^a$      |
| Mean   | 8.0 <sup>2,3,4,5</sup> | 2.3 <sup>1,5</sup> | 2.4 <sup>1,5</sup> | 3.5 <sup>1</sup> | 3.7 <sup>1,2,3</sup> | 3.8   |                     |
| Standard deviation                             | 3.8                    | 1.5                | 1.6                | 2.5              | 2.1                  | 3.1   |                     |
| <i>Main organizational scope (%)</i>           |                        |                    |                    |                  |                      |       | $\chi^2 = 21.568^a$ |
| Courses and/or participant training            | 3.2 <sup>c</sup>       | 59.1 <sup>b</sup>  | 0.0 <sup>c</sup>   | 100 <sup>b</sup> | 0.0 <sup>c</sup>     | 21.7  |                     |
| Facilitated by technicians                     | 74.2 <sup>b</sup>      | 20.5               | 0.0 <sup>c</sup>   | 0.0 <sup>c</sup> | 42.9 <sup>b</sup>    | 28.3  |                     |
| Training and competitions                      | 0.0 <sup>c</sup>       | 0.0 <sup>c</sup>   | 55.6 <sup>b</sup>  | 0.0              | 0.0 <sup>b</sup>     | 15.7  |                     |
| Challenges and events organization             | 19.4                   | 11.4 <sup>c</sup>  | 44.4 <sup>b</sup>  | 0.0 <sup>c</sup> | 28.6                 | 24.7  |                     |
| Others (e.g. renting of equipment)             | 3.2                    | 9.1                | 0.0 <sup>c</sup>   | 0.0              | 28.6 <sup>b</sup>    | 9.6   |                     |
| <i>Main type of technicians' training (%)</i>  |                        |                    |                    |                  |                      |       | $\chi^2 = 52.044^a$ |
| No training                                    | 9.7                    | 6.8                | 17.8               | 18.2             | 28.6 <sup>b</sup>    | 15.7  |                     |
| Old participants                               | 9.7                    | 2.3                | 11.1               | 9.1              | 17.1                 | 9.6   |                     |
| Technical courses                              | 48.4 <sup>b</sup>      | 29.5               | 8.9 <sup>c</sup>   | 54.5             | 28.6                 | 28.9  |                     |
| Coaching courses                               | 6.5 <sup>c</sup>       | 45.5 <sup>b</sup>  | 42.2 <sup>b</sup>  | 18.2             | 5.7 <sup>c</sup>     | 27.1  |                     |
| Physical education or sports degree            | 16.1                   | 13.6               | 15.6               | 0.0              | 20.0                 | 15.1  |                     |
| High education specialization in nature sports | 9.7 <sup>b</sup>       | 2.3                | 4.4                | 0.0              | 0.0                  | 3.6   |                     |
| <i>Services development (%)</i>                |                        |                    |                    |                  |                      |       | $\chi^2 = 31.879^a$ |
| Segmentation criteria                          | 74.2 <sup>b</sup>      | 54.5               | 42.2               | 9.1 <sup>c</sup> | 34.3                 | 47.6  |                     |
| General public without segmentation            | 16.1                   | 18.2               | 4.4 <sup>c</sup>   | 18.2             | 22.9                 | 15.1  |                     |
| Specialized demand                             | 6.5                    | 6.8                | 15.6               | 27.3             | 11.4                 | 11.4  |                     |
| Beginner demand                                | 3.2 <sup>c</sup>       | 13.6               | 22.2               | 27.3             | 22.9                 | 16.9  |                     |
| Others   | 0.0                    | 6.8                | 15.6               | 18.2             | 8.6                  | 9.0   |                     |

(continued)

**Table 15.5** (continued)

| Supply indicators  | 1                 | 2    | 3                | 4                 | 5                 | Total | Statistical tests   |
|--|-------------------|------|------------------|-------------------|-------------------|-------|---------------------|
| <i>Main promotion channels (%)</i>                         |                   |      |                  |                   |                   |       | $\chi^2 = 31.268^a$ |
| Advertising (e.g. radio, TV, press, specialized magazines) | 3.2               | 2.3  | 6.7              | 0.0               | 0.0               | 3.0   |                     |
| Internet site  | 54.8              | 63.6 | 57.8             | 36.4              | 42.9              | 54.2  |                     |
| E-mail (including newsletters)                             | 9.7               | 13.6 | 17.8             | 36.4              | 34.3 <sup>b</sup> | 19.9  |                     |
| Distribution of flyers                                     | 0.0               | 6.8  | 11.1             | 0.0               | 5.7               | 6.0   |                     |
| Word of mouth  | 25.8 <sup>b</sup> | 11.4 | 2.2 <sup>c</sup> | 9.1               | 11.4              | 11.4  |                     |
| Others   | 6.5               | 2.3  | 4.4              | 18.2              | 5.7               | 5.4   |                     |
| <i>Main distribution channels (%)</i>                      |                   |      |                  |                   |                   |       | $\chi^2 = 16.520^a$ |
| Direct distribution  | 54.8 <sup>b</sup> | 36.4 | 26.7             | 27.3              | 34.3              | 36.1  |                     |
| Internet   | 41.9              | 56.8 | 62.2             | 36.4              | 57.1              | 54.2  |                     |
| Others   | 3.2               | 6.8  | 11.1             | 36.4 <sup>b</sup> | 8.6               | 9.6   |                     |

Typologies names: (1) Generalist Companies, (2) Specialized Companies, (3) Traditional Sports Clubs, (4) Sports Formation Clubs, (5) Sports Recreation Clubs

<sup>a</sup>Significant at the 0.10 level

<sup>b</sup>SAR >1.96

<sup>c</sup>SAR <-1.96

<sup>1,2,3,4,5</sup>Differences between groups

development with the highest score ( $M = 3.1$ ) of all NSO as relevant and the negative impacts with a lower score as not relevant ( $M = 1.9$ ). “Generalist Companies” are also the ones who present the highest sustainable behaviour index ( $M = 89.1$ ).

The “Specialized Companies” are also micro-companies with an average of 2.5 ( $\pm 5.5$ ) full-time and 2.1 ( $\pm 5.5$ ) part-time employees. They are the most recent NSO ( $M = 7.2 \pm 5.0$  years), despite no statistical differences appearing between them and the “Generalist Companies”. They are mostly formed as limited companies (38.6%) or sole proprietor companies (31.0%), operating mainly at a regional level (43.2%). The “Specialized Companies” organize their activities primarily via courses and/or participant training (59.1%) and present a reduced number of nature sports in their supply ( $M = 2.3 \pm 1.5$ ), which is mainly composed of courses and/or participant training (59.1%). Their technicians have been mostly trained through coaching courses (45.5%). They primarily use segmentation criteria (54.5%) to develop their services, and the Internet as their main promotion (63.6%) and distribution (56.8%) channel. The “Specialized Companies” demand sees a reduced number of participants per year (for 52.3% the number is lower than 250 participants) with a regular frequency (45.5% at more than once per month). Their demand is mostly beginner



**Table 15.6** Nature sports organization demand

| Demand indicators              | 1                 | 2                 | 3                 | 4                 | 5                 | Total | Statistical tests   |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|---------------------|
| <i>N participants (%)</i>      |                   |                   |                   |                   |                   |       | $\chi^2 = 55.517^a$ |
| ≤50                            | 3.2 <sup>c</sup>  | 13.6              | 31.1              | 45.5 <sup>b</sup> | 25.7              | 21.1  |                     |
| 51–100                         | 3.2 <sup>c</sup>  | 18.2              | 24.4              | 18.2              | 20.0              | 17.5  |                     |
| 101–250                        | 6.5               | 20.5              | 15.6              | 9.1               | 14.3              | 14.5  |                     |
| 251–500                        | 6.5               | 15.9              | 15.6              | 9.1               | 14.3              | 13.3  |                     |
| 501–1000                       | 29.0 <sup>b</sup> | 18.2              | 6.7 <sup>c</sup>  | 0.0               | 20.0              | 16.3  |                     |
| ≥1001                          | 51.6 <sup>b</sup> | 13.6              | 6.7 <sup>c</sup>  | 18.2              | 5.7 <sup>c</sup>  | 17.5  |                     |
| <i>Age (%)</i>                 |                   |                   |                   |                   |                   |       | $\chi^2 = 30.356^a$ |
| <18                            | 3.2 <sup>c</sup>  | 11.4              | 31.1 <sup>b</sup> | 9.1               | 8.6               | 14.5  |                     |
| 18–35                          | 58.1              | 75.0 <sup>b</sup> | 46.7 <sup>c</sup> | 72.7              | 60.0              | 60.8  |                     |
| 36–50                          | 38.7 <sup>b</sup> | 13.6              | 22.2              | 9.1               | 25.7              | 22.9  |                     |
| >51                            | 0.0               | 0.0               | 0.0               | 9.1               | 5.7 <sup>b</sup>  | 1.8   |                     |
| <i>Gender (%)</i>              |                   |                   |                   |                   |                   |       | $\chi^2 = 36.992^a$ |
| >75% female                    | 0.0               | 2.3               | 0.0               | 0.0               | 0.0               | 0.6   |                     |
| 50–75% female                  | 32.3              | 31.8 <sup>b</sup> | 6.7 <sup>c</sup>  | 9.1               | 20.0              | 21.1  |                     |
| 50–75% male                    | 61.3              | 52.3              | 53.3              | 36.4              | 34.3 <sup>c</sup> | 49.4  |                     |
| >75% male                      | 0.0 <sup>c</sup>  | 11.4 <sup>c</sup> | 35.6 <sup>b</sup> | 54.5 <sup>b</sup> | 40.0 <sup>b</sup> | 24.7  |                     |
| Don't know/ Don't answer       | 6.5               | 2.3               | 4.4               | 0.0               | 5.7               | 4.2   |                     |
| <i>Geographical origin (%)</i> |                   |                   |                   |                   |                   |       | $\chi^2 = 46.963^a$ |
| Local                          | 0.0 <sup>c</sup>  | 9.1               | 33.3 <sup>b</sup> | 18.2              | 22.9              | 17.5  |                     |
| Regional                       | 25.8 <sup>c</sup> | 36.4              | 44.4              | 63.6              | 51.4              | 41.6  |                     |
| National                       | 51.6 <sup>b</sup> | 29.5              | 22.2              | 18.2              | 25.7              | 30.1  |                     |
| International                  | 22.6 <sup>b</sup> | 25.0 <sup>b</sup> | 0.0 <sup>c</sup>  | 0.0               | 0.0 <sup>c</sup>  | 10.8  |                     |
| <i>Experience level (%)</i>    |                   |                   |                   |                   |                   |       | $\chi^2 = 12.826$   |
| Beginners                      | 54.8              | 63.6              | 44.4              | 63.6              | 40.0              | 51.8  |                     |
| Intermediate                   | 22.6              | 11.4 <sup>c</sup> | 31.1              | 27.3              | 25.7              | 22.9  |                     |
| Advanced                       | 3.2               | 0.0               | 6.7               | 0.0               | 5.7               | 3.6   |                     |
| Varied level                   | 19.4              | 25.0              | 17.8              | 9.1               | 28.6              | 21.7  |                     |
| <i>Frequency (%)</i>           |                   |                   |                   |                   |                   |       | $\chi^2 = 70.109^a$ |
| Just once                      | 0.0               | 4.5               | 0.0               | 0.0               | 2.9               | 1.8   |                     |
| Several times, not regular     | 19.4              | 22.7 <sup>b</sup> | 4.4               | 9.1               | 2.9               | 12.0  |                     |
| Once a year regular            | 80.6 <sup>b</sup> | 27.3 <sup>c</sup> | 28.9 <sup>c</sup> | 18.2              | 51.4              | 42.2  |                     |
| >1 time/month                  | 0.0 <sup>c</sup>  | 34.1              | 22.2              | 63.6 <sup>b</sup> | 25.7              | 24.7  |                     |
| All weeks                      | 0.0 <sup>c</sup>  | 11.4              | 44.4 <sup>b</sup> | 9.1               | 17.1              | 19.3  |                     |

Typologies names: (1) Generalist Companies, (2) Specialized Companies, (3) Traditional Sports Clubs, (4) Sports Formation Clubs, (5) Sports Recreation Club.

<sup>a</sup>Significant at the 0.10 level

<sup>b</sup>SAR >1.96

<sup>c</sup>SAR <-1.96

**Table 15.7** Perception of the repercussions of the impact of nature sports on sustainable local development

|                          | 1                 | 2   | 3                  | 4   | 5                | Total |                   |
|--------------------------|-------------------|-----|--------------------|-----|------------------|-------|-------------------|
| Nature sports impacts    | Mean <sup>b</sup> |     |                    |     |                  |       | Statistical tests |
| Overall positive impacts | 3.1 <sup>3</sup>  | 2.9 | 2.6 <sup>1,5</sup> | 2.8 | 3.0 <sup>3</sup> | 2.9   | $F = 2.706^a$     |
| Overall negative impacts | 1.9               | 2.0 | 1.8                | 1.8 | 2.0              | 1.9   | $F = 1.060$       |

Typologies names: (1) Generalist Companies, (2) Specialized Companies, (3) Traditional Sports Clubs, (4) Sports Formation Clubs, (5) Sports Recreation Clubs

<sup>a</sup>Significant at the 0.10 level

<sup>b</sup> Measured on a 5-point scale: 1 irrelevant, 2 not relevant, 3 relevant, 4 very relevant, 5 totally relevant

<sup>1,2,3,4,5</sup> Differences between groups

**Table 15.8** Nature sports organization sustainable behaviour index

| 1                   | 2                 | 3                 | 4    | 5    | Total | Statistical tests |
|---------------------|-------------------|-------------------|------|------|-------|-------------------|
| 89.1 <sup>2,3</sup> | 80.8 <sup>1</sup> | 75.7 <sup>1</sup> | 74.8 | 84.4 | 81.3  | $F = 4.357^a$     |

Typologies names: (1) Generalist Companies, (2) Specialized Companies, (3) Traditional Sports Clubs, (4) Sports Formation Clubs, (5) Sports Recreation Clubs

<sup>a</sup>Significant at the 0.10 level

<sup>1,2,3,4,5</sup> Differences between groups

participants (63.6%) from both genders, with a positive trend for being mostly women (34.1%) aged between 18 and 35 years old (75.5%), drawn regionally (36.4%) and nationally (29.5%), and with a positive trend at international level (25.0%). The managers of “Specialized Companies” classify the repercussions of the positive impact of nature sports on sustainable local development as relevant ( $M = 2.9$ ) and the negative impact as not relevant ( $M = 2.0$ ). Their sustainable behaviour index is 80.8.

The “Traditional Sports Clubs” are almost all non-profit associations (93.3%), with a national (46.7%) or regional (31.1%) scope of operation and a low number of nature sports activities composing their supply ( $M = 2.4 \pm 1.5$ ). Training and competition (55.6%) and the organization of challenges or events (44.4%) are the main organizational scope presented by these NSO. Their technicians are mostly trained through coaching courses (42.2%). They use segmentation criteria (42.2%) to develop their services and the Internet as their main promotion (57.8%) and distribution (62.2%) channel. The “Traditional Sports Clubs” present a lower demand (for 55.5% the number is less than 100 participants) but with the highest frequency of all NSO typologies (for 44.4% the frequency of participants is at least weekly). The demand for these NSO comes from the youngest age group (31.1% of the participants are younger than 18 years old), mostly male (88.9%), from a local (33.3%) or regional (44.4%) base, who are beginners (44.4%) or at an intermediate level (31.1%) of proficiency in the nature sports activity. The “Traditional Sports Clubs”

are the NSO typology that classifies lower values of the repercussions of the positive ( $M = 2.6$ ) and negative ( $M = 1.8$ ) impact on sustainable local development. Their sustainable behaviour index is also one of the lowest (75.7).

The “Sports Formation Clubs” are mostly non-profit associations (90.9%), with a national (36.4%) or international scope of operation (27.3%), with an average of 2.6 ( $\pm 6.5$ ) full-time and 1.2 ( $\pm 1.4$ ) part-time employees and with a small number ( $M = 3.5$ ) of nature sports composing their supply. Their main organizational scope of operation is courses and/or participant training (100%), and their technicians have mainly been trained through technical courses (54.5%). The service development is based on a demand from specialized (27.3%) or beginners (27.3%). The main promotion channel is the Internet (36.4%) and e-mail (36.4%), and the Internet is also the main distribution channel (36.4%), despite a higher tendency for the use of other distribution channels (36.4%). They are the NSO typology with the lowest demand (within 45.5% the number is less than 50 participants) and with a decreased growth tendency (45.5%) but with a higher frequency (within 63.6% at least more than once per month). The repercussions of the positive ( $M = 2.8$ ) and negative ( $M = 1.8$ ) impact on sustainable local development are also classified with a low score by “Sports Formation Clubs” managers. Their sustainable behaviour index is the lowest of the five NSO typologies (74.8).

The “Sports Recreation Clubs” are almost all non-profit associations (97.1%), with mainly (42.9%) a regional scope of operation. They are the NSO with the highest number of nature sports composing their supply, compared to the other two typologies. Their organizational scope is mostly (42.9%) facilitated by technicians. This is the NSO typology that has a higher percentage of technicians without training (28.6%). They develop their services through segmentation criteria (34.3%), supply the services for the general public without segmentation (22.9%) or for beginner demand (22.9%). The main promotion channels are the Internet (42.9%) and e-mail (34.3%), and the Internet is also the main distribution channel (57.1%). Their demand is the highest and their frequency the lowest (for 51.4% the regularity constitutes once, annually) of the three sports club typologies. A large amount (40.0%) of their demand comes from participants who are beginners, aged mostly 18–35 years old (60.0%), mainly male (74.3%), mostly from a regional geographical origin (51.4%). The repercussions of the positive impact on sustainable local development are classified as relevant ( $M = 3.0$ ), while the repercussions of negative impact are classified as not relevant ( $M = 2.0$ ). Their sustainable behaviour index is 81.3.

## 15.5 Discussion

According to the data analysis, the five NSO typologies present several significant statistical differences in general profile, supply, demand, perception of the repercussions of the impact of nature sports on sustainable local development and the NSO sustainable behaviour index. Differences were encountered between the typologies

of companies and the typologies of sports clubs but also between the two typologies of companies and the three typologies of sports clubs.

The “Generalist Companies” differ significantly from the “Specialized Companies”. The first present a diversity of supply (usually five or more nature sports activities), mainly based on kayaking, trekking and multi-activities, while the second are based on the supply of two or three nature sports activities (of the same typology). Their organizational scope is also different because “Generalist Companies” develop services that are facilitated by technicians, while “Specialized Companies” mainly offer services via courses and/or sports skill training/education. Because of this different organizational scope, the technicians’ education is also different. The first typology is mainly based on technical courses, while the second is mostly based on coaching courses. Services development and the main promotion and distribution channels are very similar in both typologies of companies. Demand in the two typologies is different. The number of participants in the “Generalist Companies” is higher than in the “Specialized Companies” but with less frequency. The socio-demographic composition of this demand is not very different. They are mainly beginner participants who are mostly male, aged between 18 and 35 years old and coming from a national or international level. Overall perceived repercussions of the positive and negative impact on sustainable local development in the two typologies are also similar. Differences were encountered in the NSO sustainable behaviour index, where the “Generalist Companies” presented the highest score of all NSO typologies.

Sports club typologies also differ significantly from each other despite almost all of them being non-profit associations with a national scope of operation (for “Sports Recreation Clubs” the regional level is also very important). The “Sports Formation Clubs” differ from the other two typologies because they present a substantially higher number of full-time employees. The main organizational scope is also different. For “Traditional Sports Clubs” the activities are organized mainly via training and competitions, for “Sports Formation Clubs” the supply is organized through courses and/or sports skill training/education, and for “Sports Recreation Clubs” the activities are mostly facilitated by technicians. Taking these differences into account, the education of these technicians is also different. For “Traditional Sports Clubs” their education is mostly via coaching courses, for “Sports Formation Clubs” it is mainly from technical courses, while for “Sports Recreation Clubs” it is more diverse but a large number of technicians do not have any relevant training/education. The main promotional and distribution channels were very similar in the three sports club typologies, while for service development some differences were highlighted. The “Sports Formation Clubs” present the lowest demand of all NSO typologies, while the “Traditional Sports Clubs” presents the highest frequency and the highest tendency to be in demand from young participants (younger than 18 years old). Differences were found in the overall perceived repercussions of the positive impact on sustainable local development between “Traditional Sports Clubs” and “Sports Recreation clubs”, where the first presents lower scores than the second. As for the perceived repercussions of the negative impact and the NSO sustainable behaviour index, there were no differences between the three typologies.

Some differences were also observed between companies and sports club typologies. Companies are the most recent NSO. They began to emerge mainly around the year 2000, but it is worth noting that 41.6% of them were created in the year 2005 or after, thereby recording a positive trend for their creation and a negative trend for the establishment of sports clubs in that period. Companies are also the NSO that have the highest average of full-time and part-time employees. Companies are the NSO that mostly operate at a local or regional level but mainly capture participants at a national or international level. In contrast, sports clubs operate at a national or international level with their participants coming from a local or regional level. Therefore, both companies and sports clubs participate in the sport tourism sector contributing to inbound tourism (in the case of the companies) and to outbound tourism (in the case of sports clubs). The companies' demand is also comprised of the highest number of participants but with less frequency, while the sports clubs have a minor number of practitioners but with a higher frequency of practice. These results reflect the hedonistic tendency of society, demonstrated by a greater search for "compromise-free" activities supplied by companies, in contrast to the commitment associated with sports clubs, especially the "Traditional Sports Clubs".

There are also some differences between the nature sports activities supplied by the different NSO segments. The three more developed nature sports activities of each NSO segment (kayaking, multi-activities and trekking) are supplied more frequently by the highest number of the "Generalist Companies"; MTB, orienteering and kayaking are the nature sports activities supplied more frequently by the highest number of "Traditional Sports Clubs"; mountaineering, rock climbing, canyoning, diving and kayaking are supplied more frequently by the highest number of "Sports Formation Clubs"; and trekking, MTB, mountaineering and kayaking are supplied more frequently by the highest number of "Sports Recreation Clubs". "Specialized Companies" supply is very specific and is based on four typologies of nature sports activities (surfing, wind/water, diving and mountain activities).

Some similarities were also encountered between companies and sports club segments. "Specialized Companies" and "Sports Formation Clubs" are similar in the number of full-time employees, in the reduced number of nature sports comprising the supply, and in the main organizational scope that is based mainly on courses and/or sports skills training/education, despite the demand being very different. The "Generalist Companies" present some similarities with "Sports Recreation Clubs" in the main organizational scope of activities that are mostly facilitated by technicians. Despite the frequency of demand being more regular in "Sports Recreation Clubs" than in "Generalist Companies", in both segments the regularity is mostly once, annually.

## 15.6 Conclusion

The dynamics of the market today are an unavoidable force for understanding the organization of the range of nature sports. With a sample of NSO operating in Portugal, this chapter presents a comprehensive analysis of the profile of NSO

segments, a topic on which there has been little empirical research conducted to date. Five typologies of NSO were identified based on the typology of organization, the number and typology of nature sports activities and the main organizational scope. The use of segmentation may contribute to a more thorough understanding of the development of nature sports supply in Portugal.

Since 2000, the nature sports field has been noticeably affected by the force of the market, with the emergence of nature sports companies. It is also possible to consider that the associated movement shows a sector under reconstruction and that it has adjusted to the differentiated demand from that of the twentieth century. Associated movements, alongside the many other players involved in nature sports development, can play a major part in the development of a highly active force for action in the years to come. Companies are also adapting to a changing market because, although education was not initially a target for entrepreneurs (Leblanc 2001), for “Specialized Companies” it is now an important niche. The dynamics of this market are directly linked to the rise of the ecological and alternative movements, to personal development practices and community values and to another approach to the social responsibility of certain actors in society. It should be noted that the culture of nature practices is experiencing a revival after the performance, competition and playfulness that marked the final two decades of the twentieth century (Corneloup 2004).

Data from this study also has implications for academia, policymakers and industry. A better understanding of NSO supply and demand can help in defining policy for nature sports development, so that the Portuguese population can also enjoy greater access to and participation in nature sports. It is important to note that there are asymmetries in nature sports participation, especially in terms of gender and age, but also by socio-economic class. Data can also provide important information to help managers develop products that are adapted to the specificity of the nature sports market.

**Funding** This publication was supported by the Portuguese Foundation for Science and Technology (*Fundação para a Ciência e a Tecnologia*) under the strategic project (UID/SOC/50012/2013).

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# Chapter 16

## A Methodology for the Analysis of Soccer Matches Based on PageRank Centrality

**Julio Rojas-Mora, Felipe Chávez-Bustamante, Julio del Río-Andrade, and Nicolás Medina-Valdebenito**

**Abstract** Data analysis in sports has adopted many different approaches given its usefulness in quantitative and objective management. Several advances have been made considering the researches and technologies that have been developed up until now. It is possible to find many complex methodologies of sport performance analysis in order to have as much as information as possible to achieve success. Therefore, a wide variety of options are available for sport managers, coaches or anyone interested, including advances on information systems, data mining, machine learning and motion analysis. However, the cost of these powerful methodologies induces the search of cheaper techniques based on basic but proper notation methodology. The aim of this chapter is to provide an observational methodology for soccer match analysis. When paired with PageRank as the main indicator of performance, it allows for a deep analysis of the data and better decision-making and performance analysis in soccer. To show some insights about the proposed model, real data from past matches are presented and discussed. Results show graph visualization that sum up the whole match in terms of the flows of a network modelled with passes and recoveries from the players as weights of its edges. One implication of our research is to be a first approach in generalizing the PageRank algorithm to soccer team's management, which could be extrapolated to other disciplines. It also points to the feasibility of making a quantitative analysis for sport managers with a reasonable

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cost-benefit ratio. This analysis opens the paths to further analysis that could include spatiotemporal variables.

**Keywords** PageRank • Graph theory • Social network • Observational methodology • Centrality

## 16.1 Introduction

Knowing how to collect, access, retrieve and integrate information is critical to effective performance analysis and decision-making processes (Vincent et al. 2009). The development and research of data in sports has taken different perspectives, like data mining (Ofoghi et al. 2013; Li 2014; Leung and Joseph 2014; Haghighat et al. 2013), information systems (Shao et al. 2014; Qi and Wang 2014; Xie and Cai 2014; Luo and Deng 2014), event detection in videos (Li and Sezan 2002; Taki et al. 1996; Tong et al. 2005; Taki and Hasegawa 2000), behavioural models (Menéndez et al. 2013; Cheng et al. 2002; Hernandez Mendo and Anguera 2002), social network analysis (Lusher et al. 2010; Vaz de Melo et al. 2012; Pardalos and Zamaraev 2014; Passos et al. 2011) and also outcome prediction by different statistical applications (Baker and Scarf 2006; Groll et al. 2015; Stekler et al. 2010; Leitner et al. 2010). A characteristic feature of all of these approaches is the amount of data obtained by any method chosen or perspective taken. As Wang and Wang (2015) stated, sports data feature strong timeliness, multiple types, many specifications, large quantities and very complex storage. Rapid development of information technology allows users access to all types of information, including high-quality footage of live sport events, and has led to an expansion of market size for sport, not seen before in the history of the industry (Westerbeek 2013). Given how big sport business has become, many efforts have been made to handle as much information as possible, and even more, these advances in information technologies have allowed researchers and managers to be able to advance towards sport-specific metrics (Gyarmati and Hefeeda 2016). With these mechanisms, managers from professional to college or amateur teams are now capable to develop deeper analysis of a given match in order to take some opportune corrective measures in their team performance.

In soccer, match analysis is a fully accepted detection vehicle for any serious-minded managerial and coaching staff (Carling et al. 2005). These authors define match analysis as the objective recording and examination of behavioural events occurring during competition. It could provide objective information about the underlying causes of a determined problem, e.g. a poor delivery in the penalty area or difficulties in taking the ball off the goalkeeper's zone. The final score, in contrast to detailed information as the unique performance indicator, is insufficient to properly assess a team. As a consequence, measurement tools play an important role in this particular field because human observation and memory are not reliable enough to provide accurate and objective information from athletes in high-performance competitions (Henriques Abreu et al. 2012). Furthermore, in most team sports, the

observer is unable to assimilate the entire action taking place on the field, due to its attention to the game critical areas; hence, most of the peripheral play action gets usually lost (Hughes et al. 2001).

Given this context, the aim of this chapter is to provide an observational methodology for soccer match analysis, armed with just some basic information in order to develop a non-expensive tool based on network analysis. This is achieved by using the PageRank centrality measure created by Google (Brin and Page 1998) and some insights from graph theory and social networks. Our contribution has to do with a simple and economic application of the PageRank algorithm to the performance analysis of soccer players in understanding their performance, as centres in the flow of the ball, in any given match.

A key claim of our paper has to do with the fact that network analysis, when applied to soccer, allows for the representation of teamwork, which leads to a better understanding of the team as a whole, in contrast to the analysis of individuals and their personal contributions. This possibility of reinterpreting individual statistical data based on the comprehension of the group dynamic is an example that the conciliation of the common performance indexes with the novel approaches permits to cover every single level of analysis (Maya Jariego and Bohórquez 2013).

Some of the practical applications that our model features are as follows:

- Identification of the most relevant players
- Team dominance throughout the game
- Direction of the flows
- Relevance of the substitutes (compared to the time played)
- Ball recoveries or interceptions by player
- Identification of tactics (i.e. defensive or offensive game, long passes, area where the ball most circulated, etc.)
- Analysis of the rival team

The previous features are explained and discussed in this article on the following sections. After this introduction, the next section outlines the theoretical and conceptual framework that embodies our proposition with some important background to understand the core of our methodology. Section 16.4 describes the methodology required for the match analysis and the indicators used. Section 16.5 presents the results of different matches from the group phase of the past Copa America 2015 used as example. Finally, this chapter ends with a brief conclusions section, presenting the guidelines for future researches.

## 16.2 Conceptual and Theoretical Framework

### 16.2.1 *Observational Methodology*

Observational methods have been explained thoroughly by Bakeman and Gottman (1987). This type of methodology is characterized because the level of participation is “nonparticipative observation”, given that the observer does not interact with the

observed players and the degree of perception is complete, direct observation (Lapresa et al. 2013).

Furthermore, in the field of sports, observation is important from both the procedural and substantive points of view. In terms of procedure, it is the only scientific approach that is capable of gathering data directly from participants (athletes, coaches, trainers, etc.) in both the training and competitive contexts without eliciting a response from them (Anguera and Hernandez-Mendo 2013). In this last article, a thorough revision of the existent literature about observational methodology is applied, containing examples from basketball, handball, soccer, judo and swimming, among other several disciplines from sports.

In our specific case, we observe the gameplays from video matches that are recorded from a specific match, but any video recorded would work, considering how easy is to replay a whole match in television and on the Internet. The benefits from using video replays (Carling et al. 2005) are that video:

- Provides a permanent record of performance which can be watched as many times as desired
- Provides valuable information that may have been missed or forgotten by coaches or players during the match
- Helps to concentrate in a specific aspect or a specific player's performance
- Allows for an action sequence to be repeated as often as necessary to ensure that players have absorbed and understood the required information
- Can be used in real time for immediate analysis and evaluation or post-match for a deeper insight
- Is a familiar mean of presenting and discussing performance

The video analysis process is described as follows:

1. Match is observed/recorded.
2. Analysis is made under digital video editing and/or data coding.
3. Four core elements are identified: player, action, time and position.
4. A database is generated containing two-dimensional match reconstruction, edited match video, tables, graphs and/or spatial data.

There are some important aspects that make observation a proper and objective tool to overcome some of the weaknesses of the common analysis, e.g. the coach gets a lot of information and is not capable to exploit that data, and the observer gets baffled by the number of actions taking place simultaneously or in rapid sequence which cannot be immediately processed given that his or her attention is directed to the most critical areas of the game. Emotional factors of the observer play also an important role (Frank and Miller 1991; Carling et al. 2005; Hughes et al. 2001).

Thus, a wide variety of research has been conducted using perspective of observational studies. These have contributed to facilitate the systematic observation of sports. Some of them can be found in the following articles: Castellano et al. (2008), Leitão and Campaniço (2009), Sarmiento et al. (2009), Lapresa et al. (2016), Jonsson et al. (2006) and Santos et al. (2014). To sum up, working under an observational

methodology ensures to be under the most suitable methodology used in sport studies when the objective is to analyse matches in their natural context and dynamics (Anguera and Hernandez-Mendo 2014).

## 16.2.2 Graph Theory

It is said that Euler in 1741 founded both topology and graph theory by solving the Königsberg bridges problem. It consisted in visiting the four land masses of the entire city, starting and finishing in the same one, while completely crossing once over each of the seven bridges. Like this one, many situations can be described by means of a diagram consisting of a set of points connected with lines. This is the basic principle of graph theory; points are called “nodes” and the lines that connect them are named “edges”. A graph  $G$  is an ordered triple  $V(G), E(G), \varphi_G$  consisting of a non-empty set  $V(G)$  of vertices; a set  $E(G)$ , disjoint from  $V(G)$ , of edges; and an incidence function  $\varphi_G$  that associates with each edge of  $G$  an unordered pair of vertices of  $G$ . If  $e$  is an edge and  $u$  and  $v$  are vertices such that  $\varphi_G(e) = uv$ , then  $e$  is said to join  $u$  and  $v$ ; the vertices  $u$  and  $v$  are called the ends of  $e$  (Bondy and Murty 1976).

## 16.2.3 Network and Centrality Measures

The scientific study of networks, including computer networks, social networks and biological networks, has received an enormous amount of interest in the last few years. Much of this interest can be attributed to the appeal of social network analysis on *relationships* among social entities and on the patterns and implications of these relationships. That is, relations defined by linkages among units are a fundamental component of network theories (Wasserman and Faust 1994). The structure of networks has been of interest of many branches of science: methods for analysing network data, including methods developed in physics, statistics and sociology; the fundamentals of graph theory, computer algorithms and spectral methods; mathematical models of networks, including random graph models and generative models; and theories of dynamical processes taking place on networks (Newman 2010).

Centrality has been widely studied in the context of social network analysis (Clemente et al. 2016; Lusher et al. 2010). Thus, several measures have been developed, like “betweenness” (Freeman 1979), “eigenvector centrality” (Bonacich 1972) and “closeness” (Freeman 1979), among others. Even though many measures and different approaches about the concept of centrality in a network exist, Freeman (1979) offers three intuitive conceptions:

- (a) The most intuitive conception is that point centrality is some function of the degree of a point. The degree of a point  $p_i$  is the count of number of other points (nodes)  $p_j (j \neq i)$  that are adjacent <sup>1</sup> to it.

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<sup>1</sup>Two incident vertices with a common edge are *adjacent*.

- (b) The second view is based upon the frequency with which a point falls between pairs of other points on the geodesic paths connecting them.
- (c) The third conception is based upon the degree to which a point is close to all other points in the graph.

The main idea of these different approaches of centrality is to define a measure that determines the relative importance of a node within a graph. The discussion of these different researches focuses on what the most appropriate measurement should be. A complete summary and revision of the concept of centrality in networks and the different existing measures and interpretations of the concepts can be found in Borgatti (2005). The key claim of that paper is that centrality measures can be regarded as generating expected values for certain kinds of node outcomes (such as speed and frequency of reception) given implicit models of how traffic flows.

Regarding network analysis and sports, intra-group relationships are important for sport teams and include aspects such as cohesiveness and hierarchies among players (Lusher et al. 2010). Social network analysis (SNA) methods allow for the exploration of “social<sup>2</sup>” relations between team members and their individual-level qualities simultaneously. Its usefulness has to do with addressing the issue of interdependencies in the data inherent in team structures. The most basic concept of relationship in network analysis is defined by the existence of a link between two players (e.g.  $i$  and  $j$ ). It is binarily defined, where  $e_{i,j} = 1$  models the existence of a relation, and  $e_{i,j} = 0$  represents its absence. More complex networks might consider valued edges, depending on the importance or strength of the bond.

### 16.2.3.1 PageRank Centrality

PageRank, a registered trademark of Google, is an algorithm introduced by Brin and Page (1998) and used to determine the relative importance of a node, i.e. its centrality in the graph. Its most intuitive definition is that a node has high rank if the sum of the ranks of its backlinks<sup>3</sup> is high.

The definition of a simple ranking is as follows: Let  $u$  be a node,  $F_u$  be the set of nodes  $u$  points to,  $B_u$  be the set of nodes that point to  $u$ ,  $N_u = |F_u|$  be the number of edges to/from  $u$  and  $c$  be the factor of normalization; in order to keep constant the total rank of all the nodes, then the definition of  $R$ , a simplified version of PageRank, would be:

$$R(u) = c \sum_{v \in B_u} \frac{R(v)}{N(v)} \quad (16.1)$$

Even though the equation is recursive, it may be computed by starting with any set of ranks and iterating the computation until it converges. To overcome the problem

<sup>2</sup>“Social”, in this case, refers to how frequently a player passes the ball to another.

<sup>3</sup>For a given node in a graph, its “backlinks” are the nodes linking to it.

that, during the iteration, the loop will not distribute rank because two nodes are linked only between each other and, therefore, there are no out edges, Page et al. (1999) introduced the following rank source.

Let  $E(u)$  be some vector over the nodes that corresponds to a source of rank, then the PageRank of a set of nodes is an assignment  $R'$ , to the nodes which satisfies:

$$R'(u) = c \sum_{v \in B_u} \frac{R'(v)}{N_v} + cE(u) \quad (16.2)$$

Such that  $cc$  is maximized and  $\|R\|_1 = 1$ , where  $\|R\|_1$  denotes the  $L_1$  norm of  $R'$ . As presented from the creators of the method, the PageRank algorithm may be computed as:

$$\begin{aligned} R_0 &\leftarrow S \\ \text{loop:} \\ R_{i+1} &\leftarrow AR_i \\ d &\leftarrow \|R_i\|_1 - \|R_{i+1}\|_1 \\ R_{i+1} &\leftarrow R_{i+1} + dE \\ \delta &\leftarrow \|R_{i+1} - R_i\|_1 \\ \text{while } \delta &> \varepsilon \end{aligned} \quad (16.3)$$

The complete axiomatization of this page ranking algorithm can be found in Altman and Tennenholtz (2005). Some known applications of the algorithm presented are citation networks (Ding et al. 2009; Ma et al. 2008), and like ours, many other applications have been made in chemistry, biology, bioinformatics, neuroscience and engineered systems, among others (Gleich 2014). Several approximations of the PageRank algorithms have been developed, and quantitative analyses have been provided to illustrate the effectiveness of the PageRank computation (Chung 2014).

In simple words, our approach generalizes the PageRank algorithm, commonly used to rank the importance of websites, to value each node given the frequency of the flows in the network, which in this case refers to the passing of the ball. This, in order, allows for a complete visualization of the game that shows important information. This representation of the match in one map of relationships between the players as a team allows for the identification of game patterns (Lago and Anguera 2003). Given that goals are infrequent events, it is necessary to have a different independent variable, i.e. passes, in order to better understand the performance of a player in a match. Supporting this, Lago and Martín (2007) found that the variance of the goals scored in soccer matches is not large enough to identify statistically significant determinants.

## 16.3 Methodology

### 16.3.1 Data Collection

To provide a structure for the application of the methodology, we propose a simple graph where players are nodes and the weights of the edges represent the passes between any two players. In order to do this, there are some considerations in the notation to bear in mind.

Notational analysis is defined as a means of recording events so that there is an accurate and objective record of what actually took place. It provides a factual record that does not lie (Carling et al. 2005). The first part of our proposal is pretty straightforward. It begins with an almost standard notational procedure, like those presented in Sarmiento et al. (2009), Anguera and Hernandez-Mendo (2013) and Lapresa et al. (2013). It consists on dividing the area of the field into 12 same-sized zones: three rows (left, centre and right) and four columns (e.g. I, II, III and IV).

With this starting point, the aim is to collect information of each play of the game considering the following information:

- Time of the play
- Sender of the ball
- Zone of the field that the ball is sent from
- Defending player (if any)
- Receiver of the ball
- Zone of the field where the ball is being received
- Defending player of the receiver player (if any)

It is important to bear in mind that the analysis is going to be made under the basic assumption that the relative importance of a player is given by the importance of the flows received, which we model as passes. Therefore, the whole match is going to be understood as a network where flows are given by the ball passing through the players. The collection of all of these data can be made with a simple spreadsheet. With the information of each play obtained in this simple way, it is possible to model an adjacency matrix of 28 columns and 28 rows (11 starting players plus the 3 substitute players for each team).

In the second part, the collected data is processed through an R script (a GNU software<sup>4</sup>) using the “igraph” package (Csardi and Nepusz 2006), which contributes with routines for graph and network visualization and analysis. This package includes an implementation of the PageRank algorithm that we used for our analysis.

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<sup>4</sup>For further inquiries about GNU R (R Core Team 2016), check the website of the R Foundation for Statistical Computing, URL <https://www.R-project.org/>



## 16.4 Results

In order to visualize the results of our work, the methodology was applied to three soccer matches from the group phase of the Copa America 2015. In specific, those matches analysed were Chile-Ecuador, Chile-Mexico and Chile-Bolivia. They were broadcasted by a public television channel, so the recording was made with digital video tools.<sup>5</sup>

The nodes represent the players, the notation “C” is for the Chilean players, while “E” is used for the Ecuadorian players, and the number next to each letter corresponds to the shirt number worn by any given player in that match. The size of the node is proportional to its PageRank centrality measure, and the boldness of the edges is proportional to the number of passes from one player to another. Nodes that seem to be outliers on the bottom of the figures are the substitute players. The same goes for the next figures, where “M” denotes Mexican players and “B” denotes Bolivian players. We present a brief discussion of the graphs showing some basic examples of the types of analysis that can be made with this tool.

Figure 16.1 shows the Chilean dominance on the match against the Ecuadorians with a higher volume of passes and variety of options to deliver; it meant a higher possession of the ball through the entire match. Boldness of the Chilean arrows indicates an offensive tendency towards the middle field to get to the centre forward C7, Alexis Sánchez. Another conclusion has to do with the principal nodes of each team. For the Chilean case, the bigger node corresponds to C8, Arturo Vidal, the most relevant player given the flows that passed through him and the importance of the players who passed the ball to him, i.e. his PageRank value. Therefore, Vidal became the most important player for the Chilean team which won for 2 goals against 0, with the first one scored by Vidal.

For sport managers, it is useful to analyse other aspects too, like the flows between two nodes of different teams. For the case of E13, Enner Valencia, Fig. 16.1 shows that from the several flows that are directed to him, many correspond to Chilean nodes. This means that he interfered with many passes intended for Chilean players and, accordingly, recovered the ball many times, playing a defensive role even though his position was that of a winger.

In the Chile-Mexico match, Fig. 16.2 shows that the ball circulated significantly through every player, with a higher density on the Chilean side of the field. In time, Chilean nodes are bigger, have a higher centrality or are more important, with the most relevant players being C8, Arturo Vidal, and C10, Jorge Valdivia, with Vidal scoring 2 goals throughout the match.

For the Mexican team, the most relevant players are their three forwarders, showing a considerable amount of passes received from the central and lateral defenders, which means that the Mexican game was characterized by long passes (e.g. M3 to M7 edge). The most relevant players for Mexico were M9, Raul Jimenez, and M19, Matías Vuoso, both managed to score goals for their team.

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<sup>5</sup>The dataset can be requested to the corresponding author.

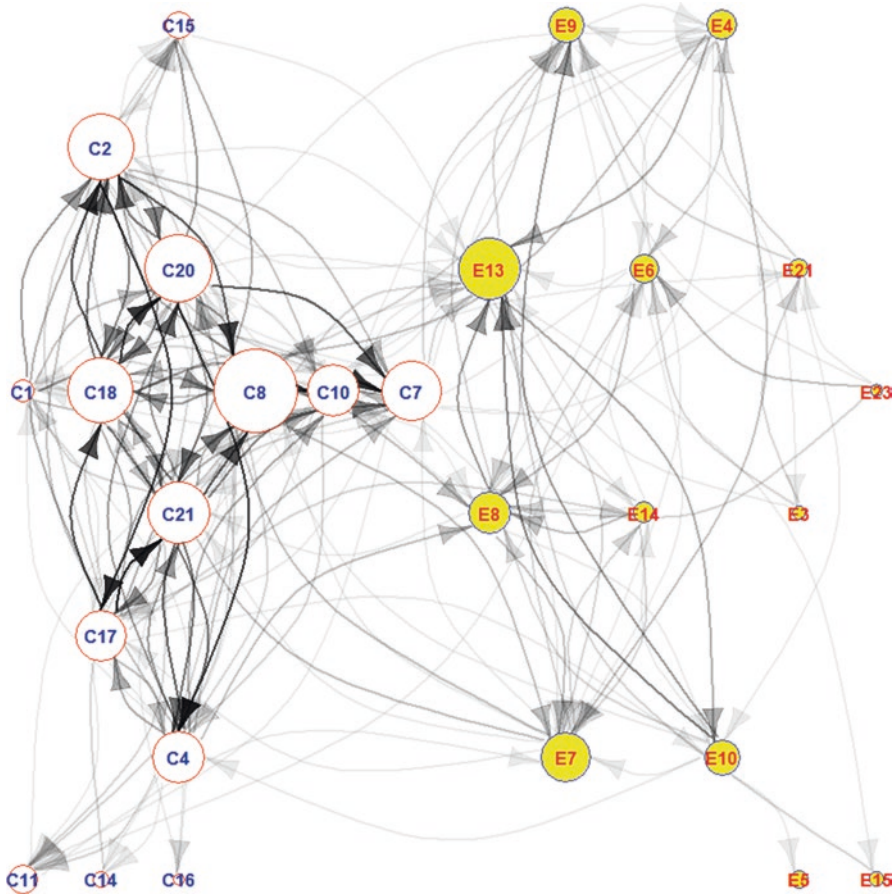


Fig. 16.1 Network of the Chile-Ecuador match in the group phase of the Copa America 2015

Finally, the Chile-Bolivia game ended with a lopsided score of 5-0. In this match, Chile played with two more “open” forwarders than the previous games, which allowed them to dominate more positions of the field with a considerable flow of the ball going to C11, Eduardo Vargas. There is clear relation between the volume of the flows for the Chilean team against the Bolivian team and the final score of the match, i.e. Chile owned the ball and, thus, the opportunities to score. In this aspect it is important to consider: in the discipline, one of the most important findings is the correlation between the ability to retain possession of the ball for prolonged periods of time and success (Bate 1988; Gómez and Álvaro 2002; James et al. 2004; In: Lago and Martín 2007).

Another analysis to be made is that in this match, the substitute players had a bigger importance in the development of the plays for both of the teams, which could not be seen, e.g. in the Ecuadorian team on Fig. 16.1. This adds another type of analysis

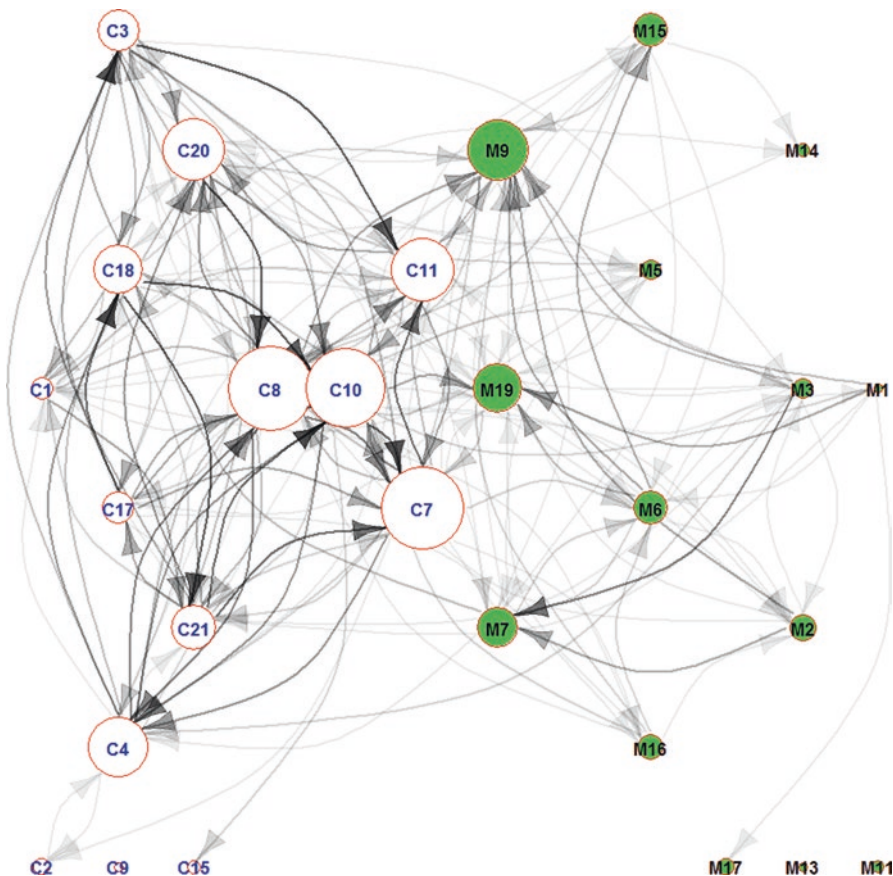


Fig. 16.2 Network of the Chile-Mexico match in the group phase of the Copa America 2015

to our approach: relevance of the substitute players during the time they played. In Fig. 16.3, the difference of the relevance of the substitute nodes for both teams is remarkable. Some are even similar to the nodes of players that started the game from the minute one. Hence, sport managers can take decisions and evaluate performance, given the relevance that substitutes manage to acquire during a shorter period than the regular first team players, and maybe evaluate if they are making the most of their time on field. For example, a coach might decide to turn a substitute into a regular starter because of the relevance of his node and flows directed from and to him.

A last thing to keep in mind is that the analysis can also have another focus. Sport managers can use this methodology not only to analyse their team’s weaknesses and strengths but also to analyse the adversaries through the data collection of other previous matches in order to set proper tactics and, in this way, develop that competitive advantage that is so much important in such a competitive environment (i.e. see which are the opponents that do not have so much relevance and then focus the direction of the ball through the less explored areas of those nodes).

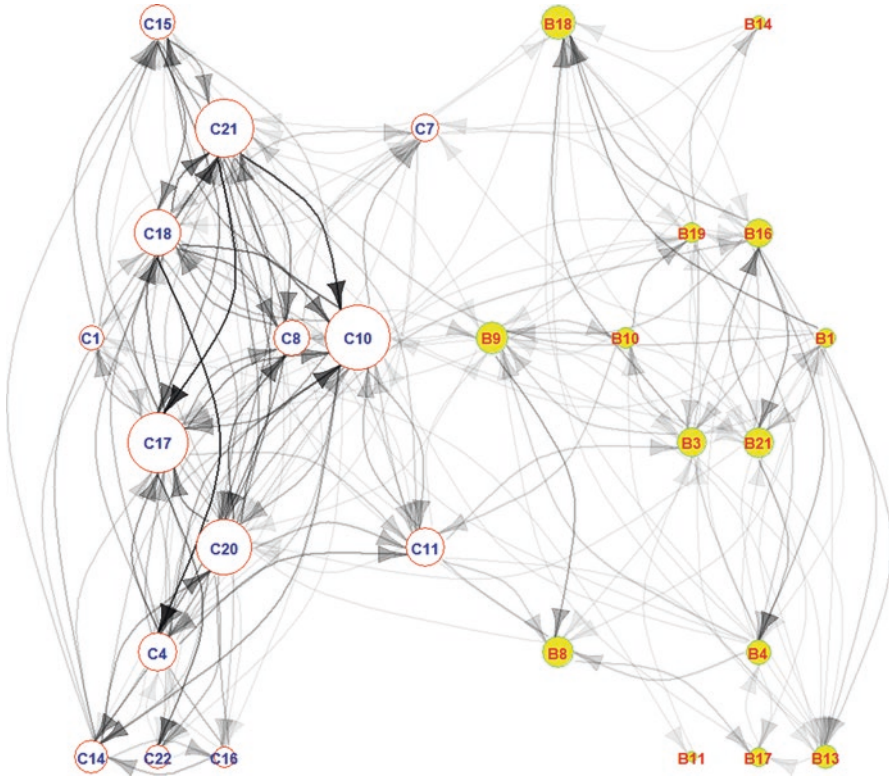


Fig. 16.3 Network of the Chile-Bolivia match in the group phase of the Copa America 2015

### 16.5 Conclusion

Graph-based algorithms have been proved to be relevant to a wide variety of applications. Even though, there is no such thing as a “perfect” algorithm to rank in sports, there is strong evidence to believe that the Google PageRank algorithm provides reliable insights (London et al. 2014; Govan et al. 2008). In our case, it aids to provide answers to the “*who, when and where*” of the plays of the match, gathering the data from point to point and transforming it into a single graph that becomes a powerful visualization, in order to aid coaches or managers to make deeper analysis. This information gets often lost at the time being played, given the huge amount of interactions that occur between the players, which disables the observers to take in-game decisions based on this data.

Our approach is within context of social networks and graph theory, by using the PageRank centrality measure as a key element to rank the nodes. That algorithm has demonstrated a wide variety of applications and a resourceful way to measure the relevance of the vertices of a given graph in many different situations. It is also

embodied within the observational methodologies and notational analysis, which ensures to be under the most suitable design methodology for sport analysis as stated before, given the importance of studying sports with its natural dynamics and that contributes to keep an objective record. Other benefits of this type of methodologies are related to overcoming the lack of attention that is paid during a match due to the amount of information for the observers and the emotional or personal factors of the observer that could potentially affect the analysis carried out.

We applied the methodology proposed to three real matches for the Copa America 2015 (Chile-Mexico, Chile-Bolivia and Chile-Ecuador), which illustrated some of the ideas that can be concluded with this observational methodology. Some of the insights that this method could provide for a match analysis are most relevant players, direction of the ball through the entire game, ball recoveries, effective passes, zone of the field that was less covered by seeing the participation of the node in its assigned section of the field, relevance of the substitutes and analysis of the rival team, among others.

The application of social network analysis (SNA) methodologies to sports has been of wide interest (Lusher et al. 2010). Its application to soccer allows modeling a team as a micro-system, whose components are linked by stable and ordered interactions that represent the collective work (Lago and Anguera 2003). At the same time, it allows to analyse the role that different nodes in the graph play, having a wider perspective on how this so-called system works (Maya Jariego and Bohórquez 2013).

Implications for sport managers are significant. Considering the low cost of this methodology, it could generate many benefits for the right performance analysis and decision-making process through a simple but powerful visualization. Although many big teams are using different methods specially developed for sport analysis (e.g. video detection analysis, specialized software or appropriate databases for large amounts of data storage) which have a considerable cost, it is important to bear in mind the budget that smaller teams might have. Our proposal contributes by adding a simple, but scientific, methodology to analyse the data, with a widely used algorithm as PageRank, which will contribute with more angles than just the final score as a performance index. The only costly side of our proposal has to do with the time needed to write down all the plays of the match. However, with just a basic spreadsheet and some simple automation, this burden can be somewhat eased.

For future work, we intend to study the indirect flow of passes given our initial adjacency matrix, to see which player of a team can indirectly allow for the flow of the ball between two almost unlinked players. We would also like to analyse the network flows from a spatiotemporal perspective, to obtain information like the position of the field which is more exploited, or the dynamics in the flow of passes of a given game. This would lead to the need of adding more detailed information at the data collection stage, and therefore, a larger database should be required. However, it would not change the core of the proposed methodology. The context for this future research has to do with the main idea of being able to find that “little bit extra” which could potentially make the difference between success and failure in sport team management (Carling et al. 2005).

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# Chapter 17

## Client Profile of Spanish Fitness Centers: Segmentation by Loyalty and Characteristics of the Client

Jerónimo García-Fernández, Pablo Gálvez-Ruiz, and Luisa Vélez-Colon

**Abstract** With the growth of the fitness sector, a concern for client loyalty emerges as managers recognize its importance. Loyalty is the client's predisposition to select a preferred provider and the tendency to resist any persuasion from the competition (Crosby and Johnson, *Marketing Management* 13(4):12–13, 2004). In particular, loyalty could be assessed with objective and subjective measures. First is the keeping or repurchasing of sport services. In the case of subjective loyalty, it could be said client behavior intention or the recommendation to other possible clients. Based on these premises, the objective of this study was to examine the subjective and objective measures of loyalty toward private fitness center by sociodemographic and behavior variables. For this a questionnaire measuring longevity of membership and behavior intentions was administered to 2931 clients (1221 women and 1710 men) from 101 fitness centers in Spain. A descriptive analysis, factorial exploratory analysis, analysis of variance, and a two-way cluster analysis were conducted. The principal results show five subgroups of client segments from the objective measure and two subgroups in the subjective measure. The results demonstrate significant differences in both subgroups with regard to behavior intentions but not according to membership longevity. This study suggests a difference in the subjective perception of the client and their behavior with regard to the purchase of service.

**Keywords** Fitness industry • Loyalty • Segmentation • Customer • Behavior • Client intentions • Objective measures

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## 17.1 Introduction

Free time in the current society encompasses a diversification of leisure, provoking a supply and demand of sport activities which satisfy the growing concern for aesthetics and well-being. In fact, there is an exponential growth in numerous sectors related to this practice whose management and commercialization move large amounts of money, resources, and people.

One of these is the fitness sector, not only is it in continuous growth (Afthinos et al. 2005) but experiences an increase of participants worldwide (IHRSA 2014). Spain measures as second in penetration ratio of this sector (15.3%) (Sacavém and Correia 2009), presently becoming a country with one of the highest number of facilities and clients in the world (IHRSA 2016).

Studies show that clients who visit these fitness centers are in general mostly men (Águila et al. 2009; Barros and Gonçalves 2009; Caracuel et al. 2003; Dhurup et al. 2006; Ipsos Marketing 2008; Lene 2004; Mañas et al. 2008; Martínez 2009; Martínez and Martínez 2008, 2010; Muyor et al. 2009; Nuviala et al. 2008); although there are studies with a majority of female clients (Afthinos et al. 2005; Alexandris and Palialia 1999; Alexandris et al. 2004; Baena-Arroyo et al. 2016; Bodet 2006; Collishaw et al. 2008; García-Fernández et al. 2016b; Lam et al. 2005; Pinillos 2004; Sanz et al. 2005; Ulseth 2004), differences in percentages of practice have not been demonstrated between gender (Papadimitriou and Karteroliotis 2000; Rial et al. 2009, 2010; Triadó and Aparicio 2004).

Although some studies have identified characteristics of clients who use these facilities, no study has systematically analyzed client segments with greater loyalty and likely to stay with the fitness center, this being a fundamental aspect for organizational management.

## 17.2 The Importance of Segmentation in the Sport Industry

Strategies related to client segmentation serve to help managers understand and predict consumer behavior or analyze purchasing patterns, among other factors. These are crucial in the decision making regarding the election and design of strategies for client satisfaction (Valcarce and Serrano 2011). Segmentation is defined as a process of dividing the market into subgroups of consumers with common needs and characteristics, selecting one or more segments to execute different actions of marketing (Schiffman and Kanuk 2000). Also Luna-Arocas and Li-Ping (2005) affirm that the process of division of a large and heterogeneous population to smaller groups of individuals that are more homogeneous and have similar needs. As explained by Tsotsou (2006), a procedure utilized to segment a heterogeneous market into homogenous subgroups, with needs and desires different from other groups but the same among themselves. Overall this practice seeks to understand the needs specific to the consumer and develop actions that can be more efficient according to the type of client (Alexandris and Tsotsou 2012).

Client segmentation continues to be a challenge for marketing professionals (Dibb and Simkin 2009), although in the last years there has been a need to profile consumers of sporting facilities due to the growth experienced in this sector (Nuviala et al. 2014). Therefore, it is necessary to perform new forms of client segmentation for a better understanding, commercialization, and personalization of services (Dixon et al. 2012), due to the variety of sporting services being demanded by more diverse groups of clients (Rial et al. 2009).

Among the advantages that come with segmentation are the understanding of a specific group of the population, the support to develop a more efficient commercialization seeking the highest satisfaction of the client, the efficiency in the division of products according to types of clients, and the identification of market opportunities and challenges (Tsiotsou 2006). Effectively, it is about achieving differentiation through price policy, service development, and adequate publicity campaigns for the target market (Elasri-Ejjaberi et al. 2016).

We used different types of segmentations, since there is no one form of segmenting a market (Kotler and Armstrong 2004), highlighting sociodemographic, geographic, psychographic, sociocultural, or behavioral. The first type (sociodemographic) is the easiest to acquire and normally is the most common to be utilized. Sociodemographic segmentation makes reference to categorizing clients by gender, age, occupation, income, and education (Tsiotsou 2006). Geography divides the client according to their city of residence, influenced by socioculture according to family life cycle or social class. With regard to psychographic segmentation, the market is divided according to lifestyle or personality. Finally, behavioral segmentation gathers groups within the population according to amount of purchase, frequency of use, or loyalty (Tsiotsou 2006). Though sociodemographic segmentation is most common for offering the greater possibility for explanations (Serrano et al. 2011), mature markets should segment with more complex strategies in order to better understand the consumer. Ideally, a combination of different segmentation strategies would be best (Alexandris and Tsiotsou 2012; Green 2003), considering that behavioral variables are decisional in purchase decisions (Bouchet et al. 2011).

The sport sector recognizes the need to segment their clients with the purpose of offering accurate product and services, yet studies in specific groups of sport clients are scarce (Rial et al. 2009). Among these, most have analyzed demographic, behavioral, or psychographic variables of sport event spectators (Alexandris and Tsiotsou 2012; Funk 2002; Funk and Pastore 2000; Gantz and Wenner 1995; Greenwell et al. 2002; Ridinger and Funk 2006; Sargent et al. 1998), users of golf courses (Lee et al. 2011; Rial et al. 2009), sport tourists (Dixon et al. 2012), or ski enthusiasts (Konu et al. 2011).

Specifically addressing the fitness sector, studies have segmented users according to participation motives (Águila et al. 2009; Luna-Arocas and Li-Ping 2005; Teixeira and Correia 2009), abandonment motives (Teva-Villén et al. 2014), motivational variables, and sociodemographics (Afthinos et al. 2005; García et al. 2014), following integral segmentation (Rial et al. 2009; Voráček et al. 2015) or according to lifestyle (Suresh et al. 2011). Despite this effort, there is still a dearth in the literature regarding client loyalty in sport organizations, resulting in an emerging line of investigation.

### 17.3 Loyalty in the Fitness Industry

Client loyalty has acquired a notable role as one of the principle objectives to be considered by enterprises in order to survive the current highly competitive market (García-Fernández et al. 2016a). According to Crosby and Johnson (2004), loyalty is defined as client predisposition to select a preferred provider, and the tendency to resist any intent of persuasion by the competitors. Other ways of demonstrating loyalty include purchase intentions, real purchases, and certain behaviors that imply word-of-mouth promotion. These actions can result in an increase of 25–95% in benefits to the club if it increases 5% in client retention, in addition to an increase in client consumption for repeated purchases (Bowen and Chen 2001).

On occasion, loyalty is not desired by the client thus making efforts counterproductive. Dick and Basu (1994) established four types of loyalty: latent loyalty, which occurs when repeated purchases are low and attitude is positive; spurious loyalty, which comes about from a repetition of purchase but low attitude; lack of loyalty, which means no repeated purchase and no attitude; and finally loyalty, occurring from high repeated purchases and attitude. In the same way, it must be taken into account that some clients are forced to commit to certain business resulting in a false loyalty. This situation is due to the cost of change, meaning barriers which make it difficult to change providers. According to Burnham et al. (2003), the cost of change (considering time and effort in searching and evaluating other possible fitness centers) or related cost of fitness centers is connected to the relationship between staff and clients.

Precisely, Alexandris et al. (2001) warn that client loyalty is a topic of crucial importance in the fitness industry due to the high dropout rate as 37% of the clients last a maximum of 6 months (García-Fernández et al. 2016b) and only 50% renew their membership (Luna-Arocas and Li-Ping 2005). Without a doubt this is due to bad management of these. If managers are able to reduce these percentages, cost will also be reduced (Bratcher 2008; Camborde 2007). For this reason, the study of variables that improve customer loyalty becomes a necessary objective in fitness centers (Scudder 2005).

In the same way, there are many factors that determine customer loyalty in fitness centers (García-Fernández et al. 2017). Among these are the location of the facility and the management of client relations (McNeil et al. 2005), quality of service or satisfaction of the client (Alexandris 2002; Athanasopoulou 2008; Avourdiadou and Theodorakis 2014; Bodet 2008; García-Fernández et al. 2016b; Pleshko and Baqer 2008; Wei et al. 2010), social relations (Basheer 2010), rewards system (Daryanto et al. 2010), weekly frequency of visits (Triadó and Aparicio 2004), monthly cost, and age (Pinillos 2004).

This data reflects the complexity of the study of variables that affect customer loyalty. As recommended by Lee et al. (2011), there remains a need for greater investigation to identify the potential of future purchase decisions. Furthermore, the profile of highly loyal clients of fitness centers remains unknown and consequently difficult to investigate.

## 17.4 Objectives

Due to the dearth of knowledge on this topic, the objective of this study was to examine in terms of membership longevity and behavior intentions and client segments with greater loyalty according to sociodemographic and behavior variables in private fitness centers. Taking into account that segmentation is an effective tool for the development of the fitness sector (Della et al. 2008), segmentation based on loyalty could help maintain more lasting relationships with clients identifying groups within the population more sensible and likely to abandon the organization.

## 17.5 Methodology

### 17.5.1 *Sample*

The sample was composed of clients belonging to private fitness centers found in the National Classification of Economic Activities (Clasificación Nacional de Actividades Económicas) (CNAE) database of business economic information also known as Sistema de Análisis de Balances Ibéricos. The codes offering potential participants were 9311 (management of sporting facilities), 9313 (gym activities), and 9319 (other sport activities). For the selection of fitness centers and due to the difficulty to access these private sporting organizations, the researchers opted for a convenience sample supported by the snowball technique (snowball sampling).

Ultimately, 2979 clients from 101 fitness centers made up the sample. The participants were from the principal cities in Spain according to population of which 2931 were used for the study. Of these, 41.7% were women and 58.3% were men. The median age of the participants was 36.5 years, and 65.5% of the sample was less than 40 years of age, leaving 12.9% to be over 50 years of age (see Table 17.1).

### 17.5.2 *Instruments*

The instrument used was a questionnaire elaborated from measures proposed by Pinillos (2004) and Zeithaml et al. (1996) due to their adaptability to the current study. The questionnaire was divided into two different sections. First, the instruments asked sociodemographic questions (gender, age, academic preparation, and family size) and information related to the sporting facility (cost: monthly, annual, or other; type of fee: all day, morning, evening, other; weekly frequency; with whom they visited the facility). Second, client loyalty was evaluated with objective and subjective measures. Objective measures requested the participant to

**Table 17.1** Distribution of sample according to gender and age

|        |                     | Frequency | Percentage |
|--------|---------------------|-----------|------------|
| Gender | Woman               | 1221      | 41.7%      |
|        | Man                 | 1710      | 58.3%      |
|        | Total               | 2931      | 100%       |
| Age    | Up to 20 years      | 149       | 5.1%       |
|        | From 21 to 30 years | 879       | 30%        |
|        | From 31 to 40 years | 890       | 30.3%      |
|        | From 41 to 50 years | 509       | 17.3%      |
|        | From 51 to 60 years | 229       | 7.8%       |
|        | Over 60 years       | 149       | 5.1%       |
|        | No data             | 126       | 4.3%       |
|        | Total               | 2931      | 100%       |

estimate how many months they had been a member of the sport facility. The subjective measure asked the participants to indicate their level of agreement or disagreements with the indicator proposed by Zeithaml et al. (1996) in his scale of behavior intentions (7-point Likert scale where 1 was total disagreement and 7 was total agreement).

### 17.5.3 Procedure

Participating centers were contacted to explain the purpose and protocol of the study. In each center, a person was assigned as responsible for the administration and collection of data. Guidelines were given for the recruitment of participants by center which consisted of approximately 20–30 clients of which at least half should pertain to clients with morning and noon access (until 3:00 pm) and the other half should be evening clients. Consent was obtained from the participants who voluntarily and anonymously completed the questionnaire taking approximately 10 min to complete.

### 17.5.4 Data Analysis

The data was analyzed in four phases. First a descriptive analysis was conducted to explore the profile of sample. With the purpose of testing for validity and reliability of the behavioral intention scale, the subjective measures were analyzed by means of an exploratory factorial analysis to test for the unidimensionality of the construct proposed by the authors and Cronbach alpha to test for internal consistency. Third, the relationship among the sociodemographic characteristics that brought the client to the facility, and objective and subjective measures were analyzed with an analysis

of variance (ANOVA) to test for characteristics sensible to the loyalty of clients to finally locate homogeneous groups by means of a two-step cluster analysis to determine which groups are more or less loyal to fitness centers. All analyses were conducted with the statistical program SPSS 18.0.

## 17.6 Results

### 17.6.1 Description of the Sample

Descriptive data of the sample are presented in Table 17.2. The analysis demonstrated that 41.1% ( $n = 1204$ ) had university or post high school education and only 13.4% ( $n = 392$ ) of the sample with a high school as their highest level of education. With regard to family size, 81.6% ( $n = 1852$ ) indicated to having a family composition of up to four members, while 48.1% ( $n = 2392$ ) had 3–4 family members.

**Table 17.2** Sociodemographic results of the participants

|             |                       | Frequency | Percentage | <i>M (SD)</i> |
|-------------|-----------------------|-----------|------------|---------------|
| Education   | No education          | 55        | 1.9%       | –             |
|             | Elementary education  | 337       | 11.5%      |               |
|             | High school education | 660       | 22.5%      |               |
|             | Professional training | 674       | 23.0%      |               |
|             | University education  | 960       | 32.8%      |               |
|             | Graduate education    | 244       | 8.3%       |               |
|             | No data               | 1         | 0.0%       |               |
|             | Total                 | 2931      | 100%       |               |
| Family size | 1 member              | 410       | 14.0%      | 2.86 (1.43)   |
|             | 2 members             | 573       | 19.5%      |               |
|             | 3 members             | 603       | 20.6%      |               |
|             | 4 members             | 806       | 27.5%      |               |
|             | More than 4 members   | 364       | 12.4%      |               |
|             | No data               | 175       | 6.0%       |               |
|             |                       | Total     | 2931       | 100%          |
| Fees        | Monthly               | 2299      | 78.4%      | –             |
|             | Annual                | 349       | 11.9%      |               |
|             | Other                 | 283       | 9.7%       |               |
|             | Total                 | 2931      | 100%       |               |
| Type of fee | All day (peak)        | 2115      | 72.2%      | –             |
|             | Mornings (off peak)   | 483       | 16.5%      |               |
|             | Evenings              | 176       | 6.0%       |               |
|             | Other                 | 157       | 5.4%       |               |
|             | Total                 | 2931      | 100%       |               |

(continued)

**Table 17.2** (continued)

|                  |                        | Frequency | Percentage | <i>M</i> ( <i>SD</i> ) |
|------------------|------------------------|-----------|------------|------------------------|
| Weekly frequency | Less than 2 times/week | 62        | 2.1%       | 4.01 (1.31)            |
|                  | 2 times/week           | 293       | 10.0%      |                        |
|                  | 3 times/week           | 695       | 23.7%      |                        |
|                  | 4 times/week           | 756       | 25.8%      |                        |
|                  | 5 times/week           | 823       | 28.1%      |                        |
|                  | More than 5 times/week | 302       | 10.3%      |                        |
|                  | Total                  | 2931      | 100%       |                        |
| Visits with      | Alone                  | 1703      | 58.1%      | –                      |
|                  | Partner/family         | 940       | 32.1%      |                        |
|                  | Other                  | 288       | 9.8%       |                        |
|                  | Total                  | 2931      | 100%       |                        |
| Longevity        | Up to 6 months         | 633       | 21.6%      | 28.62<br>(34.72)       |
|                  | 7–12 months            | 467       | 15.9%      |                        |
|                  | Between 1 and 2 years  | 710       | 24.2%      |                        |
|                  | Between 2 and 3 years  | 366       | 12.5%      |                        |
|                  | Between 3 and 4 years  | 170       | 5.8%       |                        |
|                  | Between 4 and 5 years  | 139       | 4.7%       |                        |
|                  | More than 5 years      | 296       | 10.1%      |                        |
|                  | No data                | 150       | 5.1%       |                        |
| Total            | 2931                   | 100%      |            |                        |

Continuing with the characteristic uniting the client and the fitness center, 78.4% ( $n = 2299$ ) paid a monthly fee, while 21.6% ( $n = 632$ ) paid another type of fee. Also, 72.2% ( $n = 2115$ ) had access to the facility all day, and 27.9% ( $n = 716$ ) only had access during certain hours of operation. Frequency of visits to the fitness center ranged from three to five times a week by 77.5% ( $n = 2274$ ) of the participants, and 58.1% ( $n = 1703$ ) exercised without a companion to accompany them.

The longevity of membership or total time as clients of the fitness center resulted in 37.5% ( $n = 1100$ ) having a membership length of 1 year maximum, 24.2% ( $n = 710$ ) indicated their membership and total time with the fitness center to extend between 12 and 24 months, and only 14.8% ( $n = 235$ ) had a membership for longer than 48 months.

### 17.6.2 Validation of Behavior Intention Scale

To establish validity for the subjective loyalty scale, Zeithaml et al.'s (1996) scale was adapted according to the recommendation of sport management and marketing experts. Its unidimensionality was analyzed by way of an exploratory factorial analysis, utilizing an estimation of principal components method with varimax rotation.



**Table 17.3** Exploratory factorial analysis and trustworthiness of the subjective loyalty scale

| Item  | $\alpha$ if the item is eliminated | $M$ ( $SD$ ) |
|---|------------------------------------|--------------|
| I would recommend this sporting center to other people              | .922                               | 5.82 (1.17)  |
| If I had to sign up with a sporting center, I would choose this one | .925                               | 5.69 (1.21)  |
| I identify with the values transmitted by this sporting center      | .860                               | 5.43 (1.30)  |
| Trustworthiness ( $\alpha$ )  |                                    | .884         |
| Variance explained (%)  |                                    | 81.50        |
| Kaiser-Meyer-Olkin  |                                    | .720         |
| Bartlett (chi-square, gl)   |                                    | 5272 (3)     |
| Significance  |                                    | .000         |

**Table 17.4** Differences among client characteristics and membership longevity and behavior intentions

|                    | Membership longevity |      | Behavior intentions |      |
|--------------------|----------------------|------|---------------------|------|
|                    | $F$                  | $p$  | $F$                 | $p$  |
| Gender             | 2.973                | .085 | 21.381              | .000 |
| Age                | 33.849               | .000 | 5.711               | .000 |
| Education          | 4.713                | .000 | 6.743               | .000 |
| Family             | 5.337                | .000 | 2.225               | .v   |
| Cost of fee        | 16.529               | .000 | 2.770               | .063 |
| Type of fee        | 9.780                | .000 | 5.156               | .001 |
| Frequency of visit | 3.317                | .005 | 5.036               | .000 |
| Visit with whom    | 20.509               | .000 | 7.030               | .001 |

The results demonstrated a unidimensional scale explaining 81.50% of the variance. The internal consistency by Cronbach alpha index shows a value  $\alpha = 0.805$  (Table 17.3). All three items received a medium high score between 5.43 (“I identify with the values this sporting center transmits”) and 5.82 (“I would recommend this sporting center to other people”).

### 17.6.3 Differences Between Client Characteristics, Membership Longevity, and Behavior Intentions

Once the analysis of variance among client characteristics and the objective and subjective measures of loyalty were conducted, the existence of significant differences among membership longevity (objective loyalty measure) and age, education, family size, fee paid, type of access, weekly frequency of visits, and companionship during the visit to the facility was proven ( $p < .005$ ) (Table 17.4).

### 17.6.4 Client Clusters According to Loyalty

Knowing the client aspects that were significant to membership longevity and behavior intentions, a two-stage cluster analysis was used as it is a procedure of exploration designed to analyze natural groups if variables are independent.

In the case of the objective loyalty measure “membership longevity,” the significant aspects were age, education, family size, cost of fee, type of fee, frequency of visit, and with whom they visit. The cluster analysis offered five subgroups. The first includes young adults with university education, with a family composition of four, who visit three times per week with another person, and pay a monthly fee with all-day access. The second is composed of adults with university education who live and visit the facility alone five times per week and have a monthly fee with all-day access. The third is composed of young people living with another person and who visit the fitness center alone four times per week. They have a university education and their monthly fee grants them all-day access. The fourth group is characterized by adults with elementary education, who live in a family of three members, who visit the facility five times per week with someone else, and who have a monthly fee with only morning access. The fifth and final group is composed of young people with university studies living in a four-member family, who visit five times per week on their own, and who pay a monthly fee with all-day access.

The subjective measures, “behavior intentions,” and the significant characteristics (gender, age, education, family size, access fee, frequency of visit, and with whom they visit) demonstrated two subgroups when measured through the cluster analysis. The first corresponds to young men with university education and a four-member family, who visit alone five times per week, and who pay a fee granting all-day access. The second group includes adult women with university education and a four-member family. They visit the fitness center alone three times per week and have an all-day access fee (Table 17.5).

An analysis of variance (ANOVA) was conducted to determine the existence of significant differences between the emerging groups and the two measures of loyalty (membership longevity and behavior intentions). With regard to the five identified groups, the measure between the client characteristics and membership longevity proved the existence of significant differences in both measures. In this sense, the group with the longest membership longevity was the fifth group ( $M = 3.32$ ), yet the group with better behavior intentions turned out to be the fourth group ( $M = 5.94$ ). On the other hand, the group with lower membership longevity was the first ( $M = 2.71$ ) and with the worse behavior intentions is the second group ( $M = 5.62$ ). Addressing the significance among the groups regarding behavior intentions, although there is no significant difference among the groups and membership longevity, it must be said that it is geared in this direction ( $p = .057$ ). In the case of behavior intentions, the differences among both groups are significant ( $p < .000$ ), being the second group the one with a great loyalty ( $M = 5.83$ ) (Table 17.6).

**Table 17.5** Sample according to loyalty and characteristics of the population

|             | Membership longevity  |       |       |       |       | Behavior intentions |       |       |       |       |      |
|-------------|-----------------------|-------|-------|-------|-------|---------------------|-------|-------|-------|-------|------|
|             | CLS-1                 | CLS-2 | CLS-3 | CLS-4 | CLS-5 | CLS-1               | CLS-2 | CLS-3 | CLS-4 | CLS-5 |      |
| Gender      | Woman                 | 202   | 258   | 178   | 307   | 276                 | 0     |       |       |       | 1221 |
|             | Man                   | 280   | 415   | 254   | 334   | 427                 | 1680  |       |       |       | 30   |
|             | Total                 | 482   | 673   | 432   | 641   | 703                 | 1680  |       |       |       | 1251 |
| Age         | Up to 20 years        | 31    | 0     | 0     | 88    | 30                  | 94    |       |       |       | 55   |
|             | From 21 to 30 years   | 304   | 0     | 187   | 49    | 339                 | 545   |       |       |       | 334  |
|             | From 31 to 40 years   | 64    | 547   | 147   | 132   | 0                   | 536   |       |       |       | 354  |
|             | From 41 to 50 years   | 49    | 5     | 34    | 119   | 302                 | 278   |       |       |       | 231  |
|             | From 51 to 60 years   | 8     | 41    | 43    | 105   | 32                  | 100   |       |       |       | 129  |
|             | Over 60 years         | 1     | 14    | 13    | 121   | 0                   | 86    |       |       |       | 63   |
| Education   | No data               | 25    | 66    | 8     | 27    | 0                   | 41    |       |       |       | 85   |
|             | Total                 | 482   | 673   | 432   | 641   | 703                 | 1680  |       |       |       | 1251 |
|             | No education          | 8     | 1     | 7     | 33    | 6                   | 30    |       |       |       | 25   |
|             | Elementary education  | 16    | 40    | 38    | 208   | 35                  | 188   |       |       |       | 149  |
|             | High school education | 140   | 141   | 32    | 181   | 166                 | 369   |       |       |       | 291  |
|             | Professional training | 135   | 161   | 109   | 113   | 156                 | 406   |       |       |       | 268  |
| Family size | University            | 171   | 240   | 201   | 94    | 254                 | 532   |       |       |       | 428  |
|             | Graduate              | 11    | 90    | 45    | 12    | 86                  | 154   |       |       |       | 90   |
|             | No data               | 1     | 0     | 0     | 0     | 0                   | 1     |       |       |       | 0    |
|             | Total                 | 482   | 673   | 432   | 641   | 703                 | 1680  |       |       |       | 1251 |
|             | 1 member              | 38    | 181   | 52    | 37    | 102                 | 249   |       |       |       | 161  |
|             | 2 members             | 56    | 159   | 153   | 126   | 79                  | 301   |       |       |       | 272  |
| Family size | 3 members             | 101   | 116   | 63    | 203   | 120                 | 355   |       |       |       | 248  |
|             | 4 members             | 171   | 81    | 110   | 166   | 278                 | 463   |       |       |       | 343  |
|             | More than 4 members   | 87    | 62    | 49    | 68    | 98                  | 219   |       |       |       | 145  |
|             | No data               | 29    | 74    | 5     | 41    | 26                  | 93    |       |       |       | 82   |
|             | Total                 | 482   | 673   | 432   | 641   | 703                 | 1680  |       |       |       | 1251 |

(continued)

**Table 17.5** (continued)

|                  | Membership longevity |       |       |       |       | Behavior intentions |       |       |       |       |
|------------------|----------------------|-------|-------|-------|-------|---------------------|-------|-------|-------|-------|
|                  | CLS-1                | CLS-2 | CLS-3 | CLS-4 | CLS-5 | CLS-1               | CLS-2 | CLS-3 | CLS-4 | CLS-5 |
| Cost of fee      | Monthly              | 356   | 518   | 408   | 530   | 487                 | 1322  | 977   | 977   | 977   |
|                  | Annual               | 65    | 110   | 20    | 24    | 130                 | 200   | 149   | 149   | 149   |
|                  | Other                | 61    | 45    | 4     | 87    | 86                  | 158   | 125   | 125   | 125   |
|                  | Total                | 482   | 673   | 432   | 641   | 703                 | 1680  | 1251  | 1251  | 1251  |
| Type of fee      | All day (peak)       | 405   | 544   | 363   | 225   | 578                 | 1292  | 823   | 823   | 823   |
|                  | Morning (off peak)   | 37    | 89    | 43    | 250   | 64                  | 242   | 241   | 241   | 241   |
|                  | Evening              | 39    | 25    | 19    | 67    | 26                  | 81    | 95    | 95    | 95    |
|                  | Other                | 1     | 15    | 7     | 99    | 35                  | 65    | 92    | 92    | 92    |
| Total            | 482                  | 673   | 432   | 641   | 703   | 1680                | 1251  | 1251  | 1251  |       |
| Weekly frequency | <2 times/week        | 12    | 13    | 5     | 16    | 16                  | 27    | 35    | 35    | 35    |
|                  | 2 times/week         | 54    | 53    | 5     | 109   | 72                  | 127   | 166   | 166   | 166   |
|                  | 3 times/week         | 169   | 204   | 8     | 134   | 180                 | 356   | 339   | 339   | 339   |
|                  | 4 times/week         | 54    | 68    | 407   | 146   | 81                  | 425   | 331   | 331   | 331   |
|                  | 5 times/week         | 147   | 228   | 0     | 176   | 272                 | 538   | 285   | 285   | 285   |
|                  | >5 times/week        | 46    | 107   | 7     | 60    | 82                  | 207   | 95    | 95    | 95    |
| Total            | 482                  | 673   | 432   | 641   | 703   | 1680                | 1251  | 1251  | 1251  |       |
| Visits with whom | Alone                | 1     | 558   | 265   | 211   | 668                 | 1026  | 677   | 677   | 677   |
|                  | With partner/family  | 469   | 79    | 139   | 246   | 7                   | 528   | 412   | 412   | 412   |
|                  | Other                | 12    | 36    | 28    | 184   | 28                  | 126   | 162   | 162   | 162   |
|                  | Total                | 482   | 673   | 432   | 641   | 703                 | 1680  | 1251  | 1251  | 1251  |

**Table 17.6** Differences according to clusters and loyalty measure

|   |         | Membership longevity |          |          |          | Behavior intentions |          |          |          |
|---|---------|----------------------|----------|----------|----------|---------------------|----------|----------|----------|
|   |         | <i>n</i>             | <i>M</i> | <i>F</i> | <i>p</i> | <i>n</i>            | <i>M</i> | <i>F</i> | <i>p</i> |
| Clusters according to significance between client characteristics and loyalty             | Group 1 | 482                  | 2.71     | 9.19     | .000     | 482                 | 5.75     | 7.66     | .000     |
|   | Group 2 | 673                  | 3.14     |          |          | 673                 | 5.62     |          |          |
|   | Group 3 | 432                  | 3.09     |          |          | 432                 | 5.63     |          |          |
|   | Group 4 | 641                  | 2.84     |          |          | 641                 | 5.94     |          |          |
|   | Group 5 | 703                  | 3.32     |          |          | 703                 | 5.69     |          |          |
| Clusters according to significance between client characteristics and behavior intentions | Group 1 | 1680                 | 3.10     | 3.62     | .057     | 1680                | 5.65     | 16.91    | .000     |
|   | Group 2 | 1251                 | 2.96     |          |          | 1251                | 5.83     |          |          |

*Note:* The median in membership longevity is calculated by intervals (1 = less than 6 months; 2 = between 7 and 12 months; 3 = between 12 and 24 months; 4 = between 24 and 36 months; 5 = between 36 and 48 months; 6 = between 48 and 60 months; 7 = more than 60 months). In behavior intentions, value 1 refers to complete disagreement and 7 a total agreement

## 17.7 Discussion and Conclusions

The objective of this study was to examine loyalty in client segments of private fitness centers according to membership longevity and behavior intentions in order to understand loyalty according to sociodemographic and behavior characteristics. The study of client segmentation is a technique utilized to better understand the consumer, as in the case of this study, of sporting centers. This study was conducted with private fitness center clients in Spain, a country with one of the highest number of clients and profitability worldwide (IHRSA 2016). The results demonstrate a larger percentage of men to be the consumers of sporting services in fitness centers confirming the findings of previous studies (Águila et al. 2009; Barros and Gonçalves 2009). However, different from other published studies such as that of García-Fernández et al. (2016b) in which the sample was strictly from low-cost fitness centers. The sample of the latter consisted of a larger percentage of women which could be attributed to the characteristics of being a low-cost fitness center with a gym-only proposition, heavy technology and web use, and a minimum 50% lower than the average industry price point (Algar 2011). These characteristics may have increased the reach of the fitness industry (Valcarce et al. 2016), creating space for more and different client typologies (Smith 2008) and therefore an increase of women in these organizations due to the increase in sport participation.

The work presented utilizes a union of sociodemographic and behavioral segmentation (Tsiotsou 2006). On one hand sociodemographic segmentation would have a great explanatory capacity (Serrano et al. 2011), while on the other hand, behavioral segmentation would be decisive in the purchasing of services (Bouchet et al. 2011). The findings obtained could help improve the loyalty index of fitness centers due to low membership commitment and deficiency loyalty index (García-Fernández et al. 2016b). The results suggest that gender could influence the

behavior intentions of the client, but not the longevity of membership. Also, the frequency of visits, fee costs, and age of the client could influence the loyalty of the client (Pinillos 2004; Triadó and Aparicio 2004) both objectively and subjectively. Similarly, education, whether the client visits the center with a friend or family, and the type of fee have resulted as determining factors for a client to exhibit positive behavior with the organization, while determining whether or not to continue the membership.

The analysis to identify client segments according to objective and subjective measures of loyalty yielded different groups in numbers and characteristics resulting in a greater number of groups regarding longevity of membership, thus triggering a greater number of behaviors. The five groups resulting from the objective loyalty variable, longevity, scored differences. Precisely, the ones with greater membership longevity were in group 5 made up of young people who are university students, live in a family of four members, visit the center by themselves five times per week, and pay a membership fee granting all-day access. Meanwhile, clients with lesser membership longevity were in group 1 characterized by young people with a university education, a family made up of four, who attend three times per week, and pay an all-day access monthly fee. As it can be observed, the biggest difference between both groups would be their frequency of weekly visits to the sporting center and being accompanied by another person. In the same form, the results proved differences according to the five groups and behavior intentions. By and large, the group with the best subjective loyalty was number four made up of adults with an elementary education level, with a three-member family component, who visited the facility accompanied by someone else five times per week, and who paid a monthly fee granting only morning access. In contrast, the group with the worst cores in subjective loyalty was number two made up of adults with a university education, who live and visit the facility alone, practice physical activity five times per week, and pay a monthly fee for all-day access.

In reference to the two emerging groups according to subjective loyalty measures, there were no significant differences with regard to membership longevity, but there was a significant difference with behavior intentions. This could suggest both groups have similar membership longevity although their intentions to recommend or repeat purchase differ. Furthermore, the group with the best intentions or more positive loyalty was characterized by adult women with a university education, living with family composed of four members, and who visit the facility by themselves three times per week holding an all-day access fee.

These findings demonstrate differences in behavior of objective and subjective loyalty of fitness center clients, suggesting that member longevity in fitness centers does not always indicate better behavior intentions (Dick and Basu 1994). These results offer value to the fitness industry specifically those who manage fitness centers and establish tools to better understand their clients. It is important not only to encourage membership longevity but also to encourage positive attitudes about the organization.

Though being a pioneer study in the segmentation of fitness center clients, this study has a series of limitations. First, conducting the investigation in private or

for-profit business models may prohibit the extrapolation to public or nonprofit fitness centers. Additionally, it would have been interesting to obtain data with regard to perception of quality and satisfaction to test how client perception varies. Data on quality and perception may help managers identify when and why clients lower their perception of fitness centers. These limitations allow for different lines of investigation. It is recommended to study the public sector, allowing for a comparison between public and private models. Furthermore, studies of segmentation according to subjective variables of loyalty could be of interest to the sport management industry. Specifically, quality, value, and satisfaction have proven to be antecedents of loyalty, for which reason it may be of interest to the industry to understand the evolution of this perception in clients and the existence of differences according to sociodemographic characteristics.

Ultimately, the processes of segmentation are tools that help managers understand their client's characteristics and behaviors better. The better the client is understood, the more accurate the strategies to bolster client's loyalty and perception.

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# Chapter 18

## Municipal Sport Management: Practical Application in the City of Valencia

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**Abstract** The necessity and usefulness for citizens of the sport services offered by town/city councils to encourage practising sport is a basic pillar in today's society, which is becoming increasingly sedentary and overfed, because healthy life habits help fight diseases caused by inactivity and being overweight. Nowadays not even half the Europe population practises sport on a regular basis, which is why public administrations must encourage this healthy habit. In parallel, town/city councils' budgets have been cut due to the recent economic crisis, and they have had to revise and optimise their management models, which they had applied to all domains, especially in this one. This chapter analyses the various sport management types applied by town/city councils and presents the practical case of the city of Valencia.

**Keywords** Sport management • Municipal sport • Social efficiency • Public utilities • Municipal sport foundation

### 18.1 Introduction

One healthy life habit is to practice sport on a regular basis, a highly recommended practice that has been recognised by the authorities: “Physical activity is essential for a healthy lifestyle and for a healthy working population. It helps fulfil the key objectives defined in the Europe 2020 Strategy, particularly as far as growth, productivity and health are concerned” (UE Council 2014).

The latest Eurobarometer data on sport evidences that citizens are well aware of this situation (European Commission 2014): European citizens indicate that their main reasons for practising sport are willingness to improve health (62%), improving

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one's physical condition (40%), favouring relaxation (36%) and having fun (30%). It is necessary to point out that people could mark more than one option in this survey. The authorities face a formidable challenge because only a mean of 41% of EU citizens practice sport at least once a week. According to the same sources, the obstacles that prevent people from regularly practising sport are lack of time (42%), no motivation (20%), physical/health problems (13%) and cost as 10% of those surveyed stated that practising sport was too expensive, although only 4% of them indicated it was an obstacle. Another problem that appears in this survey was lack of suitable infrastructures in surrounding areas. Whereas 52% of those surveyed thought that sports clubs, sport facilities and other suppliers offered enough opportunities to practice sport, 39% believed that local authorities should work more in this line.

Accordingly, it would appear that the authorities still have plenty to do to set up the mechanisms and policies to help improve and increase physical activity for inactive people to become active citizens.

The present chapter presents the case of the municipal sports management of the city of Valencia. The population of this city exceeds 790,000 inhabitants (INE 2016), which rises to over 1.5 million if we include its metropolitan area. It is the third most populated city in Spain, following Madrid and Barcelona.

## 18.2 Conceptual Framework

### 18.2.1 *Criteria to Select a Sport Services Management Model*

According to the Spanish legal system, the public utilities that local administrations offer (the Spanish Government 2013) can be managed either directly (by themselves) or indirectly (by contracting out). Despite all management formulae being valid, and each having its advantages and disadvantages, choosing between one form of management and another is a matter of free choice to adapt their role to the given reality that they confront.

Although some models have been reinforced over others depending on the political context over the years, it is important to point out that the conviction that the private sector is superior to guarantee top quality services at an affordable price is no longer taken for granted. Some researchers have indicated that the problem is not formal, but substantial; i.e. it is "a matter of effective management rather than who the task actually corresponds to" (Bel and Warner 2008).

In any case, when it comes to choosing a model, it must feature the principles that rule public administrations' management, and for the particular case we are looking at, principles of sustainability and efficiency are most important. The end decision must be made after prospectively analysing it with objective data that allow the most optimum and desirable decision to be made for maximum citizen benefits (Villar Rojas 2016).

According to this approach, town/city councils must act strategically according to an action plan that considers these factors. This management style requires an overview that is not only about sport, but one that will have to interconnect all the areas involved in the process: social, economic and environmental.

Next, we go on to analyse in detail the determining factors that town/city councils must assess when they have to select the management model of the sport services that they offer their citizens:

- Efficiency
- Sustainability
- Being in line with the governance paradigm

Section 18.2.2 describes the different management models that can be applied.

### 18.2.1.1 Efficiency

The efficiency principle when assigning and using public resources means evaluating all the public expenditure policies, regulations, events or contracts that are to be adopted, and that impacts present and future public expenses and income.

Demanding better efficiency when providing public services has been emphasised with the economic crisis in an attempt to ensure that the income-expenses ratio is acceptable; i.e. providing sport services must be supported in the long term as the offer of sports is a service to which citizens have a right.

Nonetheless, the current model in many town/city councils is scarcely feasible and needs to be revised to adjust public prices at least to costs, and their quantities fall on the specific consumer of the sport service to a greater extent.

Accordingly, attempts have been made in recent years for municipal sport services to be self-financing, or for them to at least approach this aim, as opposed to the former co-financing model in which, if sport services had a cost, a price had to be paid for all these services. If this price was not paid by users, these being the true beneficiaries, it should be generally defrayed by citizens through the taxes they pay.

Therefore, having reliable data on the service's real costs is essential to improve management in economic terms. Moreover, in those cases it applies to, the need to pay more for a better service, and for a better quality service, must be transferred to users.

In order to know the real costs of sport services, apart from data about personnel, consumables, services, maintenance, etc., it is necessary to bear in mind other data about different types of information, such as:

- Increasing demand for quality services. Better qualified personnel, more and better facilities, changing rooms, etc.
- Higher regulatory demands exist for physical safety in relation to preventing occupational risks, accessibility to facilities and emergency and evacuation systems and measures.

- Requirements that fall in line with maintaining users' health increase: controlling and preventing legionellosis, controlling swimming pool water, general cleaning requirements, etc.
- When calculating costs, we must also consider public liability so users can claim if they encounter problems.

If we consider all these data to calculate costs, town/city councils must contemplate prices that allow certain levels of financing to ensure that the provision of ever-increasingly demanded public services continues, increases and improves.

### 18.2.1.2 Sustainability

The sustainable development concept appeared after the World Commission on the Environment and Development (Strategic Imperatives 1987): "Sustainable development is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs".

When talking about sustainability in managing public services, it is considered at two levels: environmental and social (economic sustainability was considered in the previous point when analysing the efficiency principle).

- Sustainability at the social level: it intends to reflect that the offer made to the municipal population should, on the one hand, adapt to its demographic characteristics and habits and, on the other hand, be innovative and anticipate this population's tastes and interests. This offer must be flexible, i.e. be able to change. The impact that the offer has must be constantly self-assessed to readapt to the (constantly changing) demands of users of sports complexes and areas.

Diversity should be managed among both the municipality's population sectors and the different cultures that appear in the social scenario to thus offer a response that adapts to each sector. Managing diversity means making it a differential advantage. This will help to provide adaptive responses and to favour communication, efficiency and commitment.

- Sustainability at the environmental level: the whole municipal infrastructure should be included in the surrounding area and should harm nature as little as possible by attempting to make good use of already existing resources and by reducing ecological harm as much as possible.

Although it is important to generally apply this concept, and to understand it as a common element, we cannot consider, for instance, an energy-saving and energy-efficient system that costs a fortune to be fitted, nor must a policy with unaffordable prices be applied for certain population sectors.

### 18.2.1.3 Governance

The last aspect to analyse is to do with the necessity of applying the governance concept, which is related to town/city councils placing their decisions in line with that put into practice nationally according to the reform of public administrations,

which began in Spain in 2012. It implies applying specific measures to adjust budgetary costs and to set the bases for a more efficient and transparent administration in the future by making the most of ICTs for relationships with citizens and companies. Indeed 87% of the foreseen measures under the “governance umbrella” have been set up to favour better cooperation and interaction between public administrations and the organised civil society (non-state agents, sports in this case) and establishing networks among them all. Thus, governance is referred to as a government in a network (CORA 2016).

In this way, citizens enjoy a collaborative model in which all the involved agents (businesspeople, sport organisations, neighbour associations and other non-profit organisations) should participate in managing sport facilities and also in the design and running of sport activities.

When this principle is applied, we face a different approach to traditional hierarchical control by public administrations; with municipalities, this civil society collaboration, preferentially of an organised kind, with its sport services is relatively easy to apply for several reasons: proximity between local governments and citizens, local governors in tune with citizens’ interests and problems, being easy to introduce different groups into various municipal decision-making institutions and better capacity to adapt and adjust policies to circumstances at the time and to citizen demands.

And so it is that the municipal administration will move towards a mixed management model in which the business sector becomes the party that applies public sport policies; i.e. it will act as a collaborating agent that will provide not only capital but also innovation, creativity and highly qualified personnel. Thus the municipal administration will move from its position as a supplier to its position as a planner, organiser, controller and assessor of services that licensed companies or sport services companies provide citizens with, commissioned by the municipal administration.

In short, a series of determining factors must be assessed to establish the municipal sports management model:

- Influence of sport on the population: strong or weak implementation
- Town/city councils’ economic possibilities: many or few resources
- Possibilities of applying different management forms: qualifying clubs or specialised companies exist

As the relevance of these factors is unequal, and depending on the municipality, it might not be feasible to determine an equal sports management model for them all. Generally, however, it is possible to establish that town/city councils have to opt for formulae to enable them (Villar Rojas 2016):

- To have a stable budget compared to public deficit (structural)
- Financial sustainability to cut financial and commercial public debt
- An expenditure rule to hold back growing public expenditure and the commitments this entails



## 18.2.2 *Management Models*

### 18.2.2.1 **Direct Management**

Table 18.1 shows the most widely implemented direct management models to provide sport services in town/city councils after identifying the most significant differences among them according to:

- Organisational structure
- Legal personality
- Risk taken by town/city councils
- Financing
- Advantages and drawbacks
- Type of town/city councils where they are more widely implemented and frequency of use

### 18.2.2.2 **Indirect Management**

According to this management model, the public administration moves from the position of a “public services provider” to that of “a public services guarantor”. The local government still reserves its ability to control and govern this activity which, in any case, is still publicly owned. It is important to point out that this model does not entail renouncing or transferring the ownership of this activity. Hence these management forms must not be identified by the “privatisation” term, which is taken as the public administration selling the asset or public service and then has nothing to do with the activity’s subsequent management as this activity then depends on the market.

In indirect management, the specialised private operator is in charge of this situation with a view to avoiding excessive local administration growth. However, public services management lines and guidelines are set by the public administration, and the private operator has an ample margin to organise resources.

The different recognised indirect management models are:

1. Licensing out
2. Agreement
3. Consortium/interested management
4. Leasing
5. A trading company

One point that they all share is that a private business person or an associative company intervenes which, either alone or in collaboration with the local public administration that owns the public management in question, participates in economically exploiting management and runs the risk of the service’s business management to a greater or lesser extent (CORA 2016).

**Table 18.1** Direct management models of wider implementation in providing municipal sport services

|  | Town/city council with no specialised institution   | Town/city council with a specialised institution   | Local autonomous organisation (foundations, etc.)  | Public institution local business (PLC)   |
|--|---|--|--|---|
| Organisational structure                                 | Specialised personnel is grouped in a functional area   | Specialisation of a town/city council's institution. A governing body and manager exist  | Its creation and any amendment correspond to the local organisation's board of directors, which will pass its rules and will appoint the steering committee  | The same as the local regional organisation   |
| Legal personality  | No  | No   | Yes  | Yes   |
| Party that runs the risk                                 | Town/city council   | Town/city council  | The organisation   | The organisation  |
| Financing  | Charged to the corporation's ordinary budget  | Has no budget of its own. Has a budgetary section as part of the town/city council's budget  | Has its own budget and assets, which differ from those of the local corporation  | The same as the local regional organisation   |
| Advantages and drawbacks                                 | It is the ideal formula in the first operation phase when there is no private commercial initiative/offer | Infrequently used formula to manage local public services. It can be a good option for sports. It allows a "certain" level of autonomy at a minimum structure cost | To avoid them getting out of control, increase the town/city council's degree of tutelage. Control: (a) its inventory of assets/rights, (b) authorisation to sign contracts with a given amount of money, (c) efficacy | Only used in town/city councils with large populations, with complex facilities, and used for special sporting events. Could be used with another type of local administrations |
| Type of town/city council that uses it /frequency of use | Also suitable for small municipalities  | Not often used in the sports domain  | Hundreds of Spanish town/city councils have such an organisation   | Many exist in Spain, generally in municipalities with populations of over 150,000/200,000   |

The private sector's collaboration in providing citizens with sport services has been a progressive process; it has shifted from a first stage in which only services to teach sport were generally provided for a price to a phase in which public sport services were consolidated by the public administration, and companies faced the challenge of exploiting public sport facilities, improving them and renewing their equipment.

In any case it is important to point out that there will always be facilities and activities that are directly managed because the public sport administration is obliged to provide citizens with access to practising sport precisely where private companies and sport organisations do not cover.

### **18.2.2.3 Mixed Management**

Mixed management is the combination of direct and indirect management elements, i.e. where sport equipment and services are managed partly by the municipal institution and partly by non-municipal institutions through licensing out, reaching agreements or leasing.

In the mixed management system, the public administration neither directly renders all the services through its personnel, which occurs in a direct management system, nor completely licenses out all the services rendered to another institution, as in an indirect management system. The public administration is somewhere in between. Hence it directly manages the so-called municipal sport superstructure, managing equipment and programmes, and coordinates the way the services it manages through other institutions' work. Some businesses today want more than to just maximise profits, and many seek to produce other benefits for society (Rueda-Armengot et al. 2017).

According to this model, citizens benefit from joint action synergies of the best public capacities with the best private skills.

### **18.2.3 Evaluation of Management Models**

As mentioned at the start of this chapter, to decide on the most suitable management model, town/city councils must carry out a prospective analysis with objective data on which they should base the decision they make. For this purpose, having information available on which they can base their decision is fundamental because it allows them to make the most optimum and desirable decision to maximise citizen benefits (Luna Quesada 2016).

Along these lines, the European Commission considers that public authorities can introduce (in the phase when public services are contracted with private operators) requirements relating especially to the quality, thoroughness and continuity of the service in question, as well as references about users' implication and participation in providing and assessing services (European Commission 2011). The same

document proposes devising quality surveys relating to carrying out the contract, which are included in the technical features and specifications, whose purpose is to imply users in appreciating standards of quality, which will have consequences for the contractor depending on survey results or if they are lacking.

In order to carry out this follow-up, creating a “comprehensive scorecard” is very important, which translates the organisation’s strategy and mission in a large set of action measures, which allows a measurement and follow-up system to become available that facilitates decision making if diversions emerge. In short, obtaining valid reliable feedback on management, and information from users themselves, is most important as it allows business actions to be strategically guided to increase user satisfaction, implication, fidelity and commitment (Hernández et al. 2007).

## 18.3 The Valencia City Council’s Sport Management

### 18.3.1 *Sport Management Model*

The municipal sport management model in Valencia, which has consolidated over the years, organises its sport competences through the sports delegation and its sport service, which acts as a unit and administrative support, and includes the municipal sport foundation (MSF) as a local autonomous organisation. According to Standard ISO 9001:2008, the MSF has a quality management system.

The MSF undertakes its activity through two lines of action as a technical office of the city council in sports matters, and as an organisation that manages the municipal sports plans offered and the sport facilities to which they are appointed.

This model combines different ways of managing services and facilities and combines direct public sport management and indirect public management through specialised companies and the local association fabric specifically in clubs and federations. It is a mixed model that seeks to strike a global balance among social, sport and economic profitability.

The Valencia MSF, created in 1981, is an institutional organisation of public right whose purpose is to promote, encourage and manage sport in the city of Valencia.

It takes a decentralisation regime and is in charge of organising and administering the competences legally assigned to the municipality of Valencia in sport matters, for instance:

- Undertaking the Valencia City Council’s competences in sport matters
- Encouraging physico-sport activity by devising and executing plans to promote sport for everyone
- Organising the local administrative structure in sport matters
- Promoting local sport associationism
- Constructing, improving and managing municipal sport facilities
- Managing the sport facilities that it has been appointed

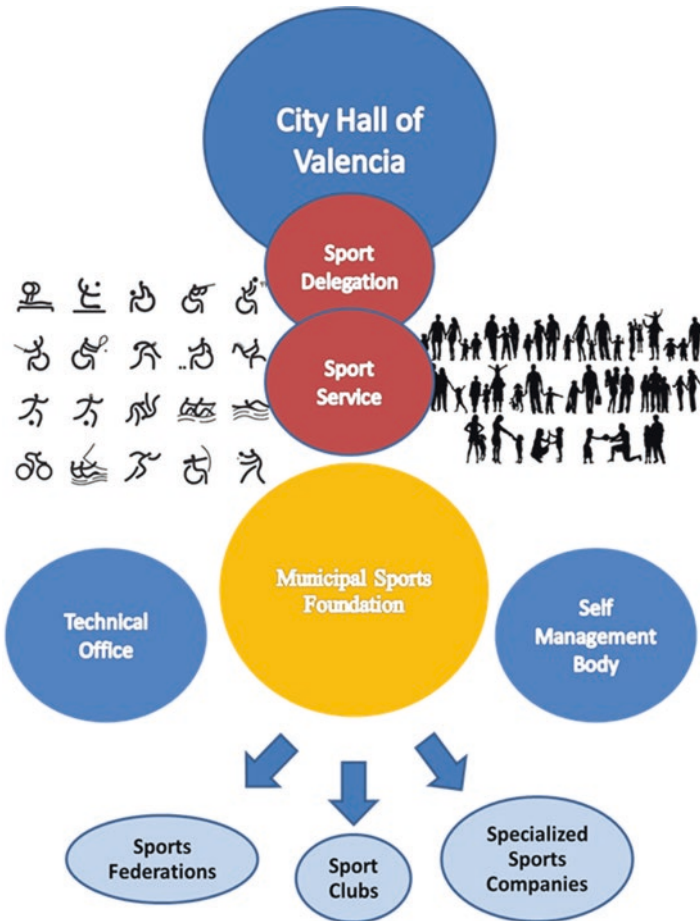


Fig. 18.1 Mixed model to manage the municipal sport services in the city of Valencia (Source: The author’s own (Valencia 2017))

- Supporting the sport competitions of local organisations and sporting events
- Disseminating sport through different publications, events or by other similar means
- Encouraging fair play and preventing violence and unsporting attitudes
- Other activities related to those listed above to encourage sport activities in any form or category (Fig. 18.1)

### 18.3.2 Action Plans

Three plans cover all actions: the management plan of the Valencia sport facilities, the master plan of sport activities and the management plan of the Valencia MSF. They are all included in the Valencia strategic plan for sports.

### 18.3.2.1 The Management Plan of Sport Activities

All the sport activities that exist in Valencia are offered through the actions included in this plan via collaboration agreements reached with different organisations to undertake various sport activities, for instance:

- Sport at school
- Activities for adults
- Activities in nature
- Traditional Valencian games
- Encouraging all sport activities for everyone
- Organising tournaments
- Supporting competition sport
- Sport events

Other activities directly organised or in which they are collaborated:

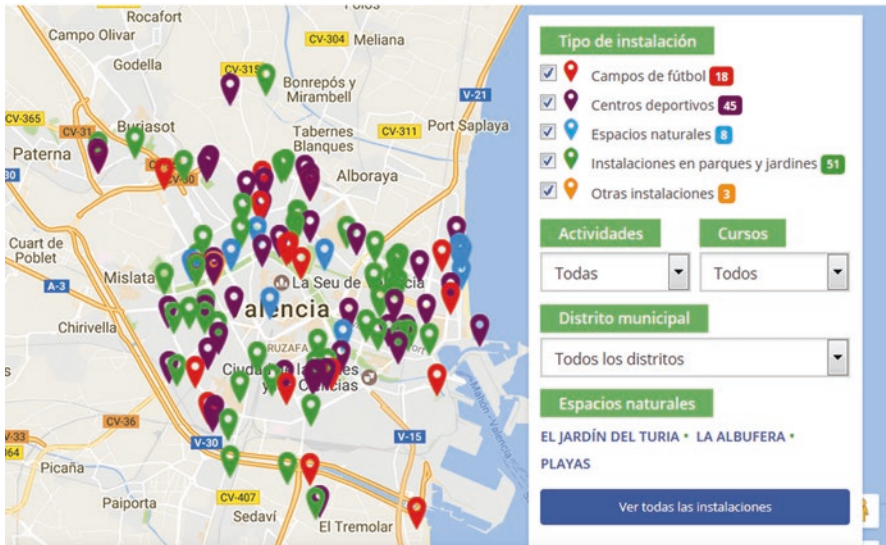
- Fun runs
- City/town marathons
- Bicycle day
- Free use of municipal sport facilities for people who practice sport, associations and organisations
- Supporting the research and dissemination of sport

### 18.3.2.2 The Master Plan of Sport Facilities

Since the MSF was created in 1981, it has gone from having no municipal sport facilities to currently having:

- Football pitches: 18
- Sport centres: 45
- Nature spots: 8
- Facilities in parks and gardens: 51
- Sports resort: 1
- Sports medicine centre: 1

The activities undertaken and the number of facilities in brackets are as follows: Fitness regime (6), Agorespace (1), Chess (7), Aquafamily (1), Athletics (3), Adapted athletics (1), Badminton (3), Basketball (42), Adapted basketball (2), Handball (31), Swimming (20), Nighttime swimming (1), Beach volleyball (1), Baseball-softball (1), Bowling (1), BMX (1), Boccia (1), Cycling (2), Adapted cycling (1), Cyclo-cross (1), Physical condition (2), Croquet (1), Climbing (2), Fencing (4), Adapted fencing (2), Frontenis (4), Football (19), 7-a-side football (27), American football (1), 5-a-side football (44), Adapted 5-a-side football (2), Artistic gymnastics (2), Rhythmic gymnastics (1), Weightlifting (2), Hydrotherapy (1), Hockey (2), Floor hockey (3), Judo (2), Karate (1), Wrestling (1), Mini golf (2),



**Fig. 18.2** Sport facilities in Valencia (Valencia 2017)

Muscle building (20), Paddle tennis (13), Skating (15), Speed skating (1), Boules (9), Valencian pilota (1), Rugby (1), Hopskotch (1), Skateboard (2), Squash (2), Scuba diving (1), Tennis (11), Table tennis, (12), Archery (1), Training camps (1), Triathlon (1), Sailing (1), Volleyball (9) (Fig. 18.2)

### 18.3.2.3 The Valencia Strategic Plan for Sports

The fact that Valencia was nominated, but not appointed, the European City of Sport 2011 sped up its strategic plan being implemented, which had two main objectives (Valencia 2015):

- Promote the practice of physical and sport activities among Valencian citizens and increase the percentage of citizens who practice sport.
- Position Valencia as a national and international reference city in the sports domain.

The strategic areas it acts in are:

- Sport areas
- Sport, health and education
- Sport, economy and being promoted elsewhere

Attempts are made to accomplish the intentions of the strategic plan, which include:

- Sport for school children
- Activities organised in municipal sport facilities
- Sporting events (participative, special sport events and top-level competitions)
- Associationism and sport volunteer work
- Sport organised in nature spots
- Culture, sport and tradition
- Disseminating and communicating sport
- Support and developing sports technification

The MSF also has a Municipal Sports Research Centre that operates as an observatory of sport management but focuses on studying Valencian citizens' sport habits. It attempts to obtain objective and statistical information about the whole sport system in the city of Valencia. One of its tasks is to create a one-stop shop that centralises all the information about training action offers of physical activity and sport. While conducting studies, this observatory receives help from:

- The Valencian Biomechanical Institute (IBV)
- The Valencian Economic Research Institute (IVIE)
- The Department of Sociology of Valencia University
- The Faculty of Physical Activity and Sport Sciences
- The University Physical Education and Sport Service
- The Directorate General of Sports of the Regional Valencian Government (Generalitat Valenciana)
- The Sport Documents Centre

## 18.4 Conclusions

Management of public services in city/town councils can come in different forms, and choice can condition the efficiency and sustainability of the services offered to citizens, as well as their variety and direct and indirect cost, as we saw in the analysis of the different management options.

The professionalisation of managing municipal sport services is key to guarantee suitable decision making in this respect and to consequently improve both the efficacy and efficiency of these services and all that this implies. Such professionalisation must not always be achieved by resorting to private organisations, although it is worth seeking their support in certain cases.

In this case study about the Valencia City Council, a city with more than 790,000 inhabitants, mixed management is being used. It has also been verified that it has taken into account and applied basic principles, which are analysed in the present chapter:



- Efficiency: a mixed model, which is economically sustainable for the Valencia City Council, has been created.
- Sustainability: it has gone from having no sport facilities in 1981 to having more than 100 in which a wide range of sports is practised, including sports adapted to people with some form of disability. Certain facilities have been created in free-for-all green areas to avoid price being an obstacle for citizens to practice sport. Environmental aspects have also been taken into account when designing these facilities so they are also environmentally sustainable.
- Governance: configuring a management model through the MSF facilitates the participation of citizens and local associations in the design, management and assessment of municipal sport services.

The main objective of public services must be to seek and put into practice solutions for social problems, which, in this case, is the need to improve citizens' health and quality of life by practising sport. The present work presents the case of the city of Valencia's municipal sport management as an example of implementing a mixed management model.

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# Chapter 19

## State of the Art of Research on Quality Management and Sport

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**Abstract** At present, intensified competition together with the need to adapt to customer demands contributes to sports organizations aiming to achieve the highest quality in the services they provide. In this way, quality has become an unavoidable aspect of sports management and an element of strategic differentiation, as it is one of the main factors influencing competitiveness. The aim of this chapter is to provide a current picture of the scientific literature relating to quality management in the sports field in order to know who, what, where, how, and how much has been researched and the main lines of research followed in this field. The work methodology consists of the collection and analysis of indexed documents in the multidisciplinary database Scopus (Elsevier), by using an advanced search of terms. Eighty-six publications were analyzed and it was observed that it was not until 2009 when there was a real increase in scientific production on quality management in the sports field.

**Keywords** Quality management • Sport management • Scopus • Bibliometric study • Scientific journals • Review of the literature

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## 19.1 Introduction

Currently quality management has become one of the priorities for business management, as in numerous studies, it has proved to have the capacity to improve the competitiveness of companies (Powell 1995; Anderson and Sohal 1999; Lee et al. 1999; Samson and Terziovski 1999; Zhang 2000; Yang 2006; Talib et al. 2013), through continuous improvement and by providing quality services and thus promoting improved performance in organizations, understood as operational-organizational and economic-financial results (Casadesús and Karapetrovic 2005, Tarí and Pereira 2012). In the last years, the management of sports services, although with some delay, has also incorporated this management philosophy.

The need to gain more in-depth knowledge about this form of management has encouraged research and therefore the emergence of numerous scientific papers in the academic world that analyze the implementation process of quality systems within the company and its consequences. Most of the studies have been conducted in industrial businesses (Gotzamani and Tsiotras 2002; Stevenson and Barnes 2002; Naveh and Marcus 2007, Dick et al. 2008, among others), and despite the importance that services have today in most economies, research in quality management focused on this sector is not as developed as in the case of manufacturing companies (Serrano et al. 2007: 34).

Thus, some studies that provide a review of the literature on quality management do not specifically discuss the service sector (Sousa and Voss 2002), while others suggest that research in this area is insufficient and, therefore, there is the need to go more into depth on the issue (Sureshchandar et al. 2001: 402).

On the other hand, customer demand preferences have evolved with society. The search for greater welfare and quality of life has led to currently considering sport as an important social phenomenon. A service economy, as is the sports sector, requires adapting to changes that new times bring. As a result, management of sports organizations through quality is an essential choice, which provides added value and distinguishes some organizations from others, so those that want to be competitive must apply quality in their management.

Based on these considerations, the main objective of this study is to show an x-ray of the existing scientific literature on quality management in sport, by using quantitative bibliometric methods. By applying mathematical and statistical procedures, the set of published documents (Spinak 1996: 34) is analyzed and thus responds to the need for compiling research results, which arises periodically in different fields of knowledge. The aim is to determine scientific production characteristics, by structuring and synthesizing existing knowledge, that is, to answer how, who, what, where, and how much has been researched.

When conducting the bibliometric analysis of any area, the first step is to consider the databases available, their suitability, and the consequences of using one or another. The validity of a work depends on the adequate selection of the database, as it should cover the field under study sufficiently (Granda-Orive et al. 2013: 2).

At the same time, another purpose of this study is to determine the lines of research dealt with, i.e., the identification of methodologies and subjects of common interest to researchers.

In order to achieve the objectives, the documents published in indexed journals in the Scopus database owned by Elsevier were reviewed, which provides a general overview of the research output from an international perspective and is therefore an appropriate instrument for the approach to this type of analysis. Through an advanced search of terms, a set of 104 references were selected, 86 of them were articles, during the 1990–2014 period, which make up the empirical basis of the study and have subsequently been dealt with through the bibliographic manager RefWorks.

After this introduction, the theoretical framework approach required to know the state of research in bibliometrics and quality management in sport is used as a basis. The second section describes the Scopus database, the methodology, and tracking strategy used to obtain references. Subsequently, in the third section, the main results of the review of bibliometric indicators are detailed. The work concludes with the fourth section, where the final conclusions and limitations encountered throughout the research are presented.

## 19.2 Theoretical Framework

Transmission of scientific advances is carried out by different means, of which specialized publications occupy a prominent place. In this regard, we can find bibliometrics as a useful tool to analyze the scientific production by means of indexes obtained from the work contained in those publications, in particular that presented in the form of articles. Described as “the application of statistical and mathematical methods available for defining the processes of written communication and the nature and development of scientific disciplines through counting techniques and analysis of such communication” (Pritchard 1969: 348). Bibliometrics enables to know the production (documents, authors, and institutions), dissemination (national and/or international), and impact of the literature published within a given field of knowledge.

This technique is applicable to all knowledge areas, and therefore quality management is a subject liable to be examined with this tool. Thus, studies such as those by Ahire et al. (1995), subsequently reviewed by Alvarez et al. (2000), Molina-Fernandez et al. (2003), Del Rio-Rama and Martinez-Carballo (2007), or more recently the one conducted by Dahlgaard-Park et al. (2013), carried out a preliminary analysis of the scientific production regarding quality management both at national and international levels.

The concept of quality is an indefinite term that has been interpreted in different ways over time (Parasuraman et al. 1985:41). For Crosby (1979), its origins are in industrial tangible goods where quality is understood as the compliance with certain specifications and where the main motivation of the company is to reach the figure

of zero defects. In the same way, Juran et al. (1974) see quality as the characteristic of a product, work, or service that makes it ideal. Currently, a well-accepted definition is the one by, among others, Reed et al. (1996: 178), stating that “the quality concept means producing quality products and/or services according to specifications that meet customer expectations.”

The interest for quality management has increased in recent years, allowing for continuous improvement of all functions of the organization in order to meet the needs and expectations of customers (Tari and Garcia 2009:137). For these authors, the quality management theory was developed based on three fundamental aspects: the contributions of quality leaders (Deming 1982; Juran 1988) that show common elements to develop a culture of quality; quality models that identify a set of dimensions to develop this culture; and studies of measurement (Saraph et al. 1989; Flynn et al. 1994), which are reliable tools to assess these dimensions.

It is easy to find abundant literature on quality management applied to industrial production, highlighting studies that develop an instrument for measuring quality management (Flynn et al. 1994; Ahire et al. 1996), but references on quality applied to the production of services are significantly fewer and, above all, much more recent (Dorado and Gallardo 2005: 17).

Services can be defined as “facts, processes and performance” (Zeithaml et al. 2006:4) that have four characteristics: intangibility, simultaneity, heterogeneity, and perishability (Zeithaml et al. 1990). The definition suggests that the service in general is not an object that can be felt or touched, distinguishing it from tangible products. This means that the standard quality applied to goods cannot be given to services and that the consumer will not be able to check the quality of many services before purchasing them.

For Grönroos (1984), it is difficult to find a sector in which there are no services that complement the product offered, having to talk about service management in business in general, regardless of whether the company belongs to the service or industrial sector. Taking into account, among others, the work done by this author, Santomá and Costa (2007:32) defines service quality as “a subjective concept that results from the customer’s perception of the service provided compared to impressions previous to consumption,” emphasizing on the customer. According to Parasuraman et al. (1988: 16), perceived service quality is defined as “a global judgment or attitude concerning the superiority of a service,” and they state that the judgment of service quality is a reflection of the degree and direction of divergence between consumers’ perceptions and expectations.

Regardless of the elements that determine service quality, it is a precursor of user satisfaction (Shonk and Chelladurai 2008:596) and that of users’ future intentions (Murray and Howat 2002:39), while the perceived value has been identified as an important mediator between service quality and user satisfaction (Calabuig et al. 2010:590).

Sports organizations are aware of the need to assess quality. In recent years, the increase in sports practice has led to high levels of participation that require an increasingly higher quality of the service provided. Quality implies an opportunity for any organization to evolve according to society demands and needs, which

provides added value when differentiating from other competitors. Quality within sports organizations is twofold: on the one hand, internally, which aims to improve procedures for each area of the organization and, on the other hand, externally, which aims to improve the services and activities provided by the different groups involved (Dorado and Gallardo 2005:17).

As it is an emerging sector, it has been incorporated with some delay to the quality path (Martinez and Martinez 2008:245), and therefore, its management within the sports industry is still at an early stage (Szabó 2010:821), requiring more research.

An analysis of the literature on quality management in this area reveals studies, among others, on water sports (Donne 2009), athletics (Unruh et al. 2005), or active tourism sports (Shonk and Chelladurai 2008). There are also studies that analyzed the quality perceived by spectators at sporting events (Yoshida and James 2011), but according to Nuvila et al. (2012: 13), most of the studies have been based on the analysis of service quality in sports centers (Afthinos et al. 2005), of public (Yildiz and Kara 2009) or private nature (Rial et al. 2010).

The SERVQUAL model is the most commonly used instrument to measure service quality (Liu et al. 2009) and, regarding sports management, other measurement models, such as the following, have been used: QUESC (Afthinos et al. 2005), Service Quality Scale to evaluate sports centers (Grammatikopoulos et al. 2006), QSport10 (Rial et al. 2010), SERVPERF in specific sports (Lee et al. 2011), or other specific methods (Shonk and Chelladurai 2009).

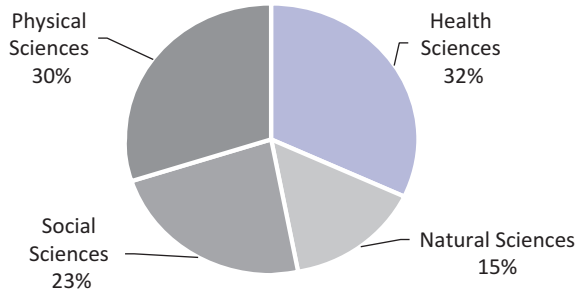
## 19.3 Methodology

This section describes the process followed in the bibliometric study, understood as the processing of scientific literature through quantitative methods in order to evaluate the research activity in a particular field (Herrero-Prieto 2009:39). The field under study in this research is the evaluation of the scientific literature on quality management in the field of sport, carried out through scientific publications listed in the Scopus database. This involves a descriptive and quantitative analysis of the articles related to the study area and not an assessment of the quality of their content.

### 19.3.1 *The Scopus Database*

Scopus is the bibliographic database of peer-reviewed scientific literature that provides an overview of world research production in the fields of science, technology, medicine, social sciences, arts, and humanities. Created by Elsevier in November 2004, it has smart tools to track, visualize, and analyze quotes dating from 1996, and its strengths and weaknesses have been analyzed in studies such as those by

**Fig. 19.1** Scopus coverage by large areas (Source: [www.elsevier.com/online-tools/scopus/content-overview](http://www.elsevier.com/online-tools/scopus/content-overview))



Goodman and Deis (2005) or Bar-Ilan (2010), among others. Its ability to manage the bibliographic references of the articles and to quantify the quotes referred to each of them enables to evaluate the scientific activity of a journal, the performance of an institution, or the international presence of an author, making it an essential tool for the analysis of any discipline (Fig. 19.1).

Scopus contains over 53 million references published in over 21,000 scientific journals. It includes 390 commercial publications, 370 series of books, 5.5 million papers, 25.5 million patents, or 376 million websites. The journals are classified into 295 subject categories grouped into 27 areas within 4 knowledge areas: life sciences, health sciences, physical sciences, and social sciences and humanities.

### 19.3.2 Tracking Methodology

Following the outline of similar work, the study only analyzes those articles published in scientific journals, considered the main means of transmission of research results, and recognized as “certified knowledge” (Ramos-Rodríguez and Ruiz-Navarro 2008:23), which make up a representative sample of the scientific activity at international level and the basis for the development of bibliometric indicators (Benavides-Velasco et al. 2011:79). Thereby, Maltrás-Barba (2003:264) states that “the publications are presented as crystallizations of scientific results and their use as a database for bibliometric analysis is generally justified.”

In order to limit the search results to the field of quality management in sport, a tracking strategy of articles was chosen by means of terms within the *title of articles* field. This search mode has the advantage of allowing to reach journals classified within all subject areas and is therefore more comprehensive (Corral-Marfil and Cànoves-Valiente 2013:59).

To reach the final selection of the articles that make up the study sample, some manipulation of the search results was necessary. Thus, articles related to aspects different from quality management were excluded, such as quality of life, and different names referring to the same author were debugged. The deadlines for this study are established by the database itself, from the date of publication of the first



article (“Quality indicators used by retail buyers in the purchase of women’s sportswear” Rogers, J.C. and Lutz, S.L.) from 1990 to the present.

The final result was 86 articles published in 51 journals and written by 182 authors that make up the empirical basis of the study, all recorded with the bibliographic reference manager RefWorks.

## 19.4 Results and Discussion

### 19.4.1 Documents

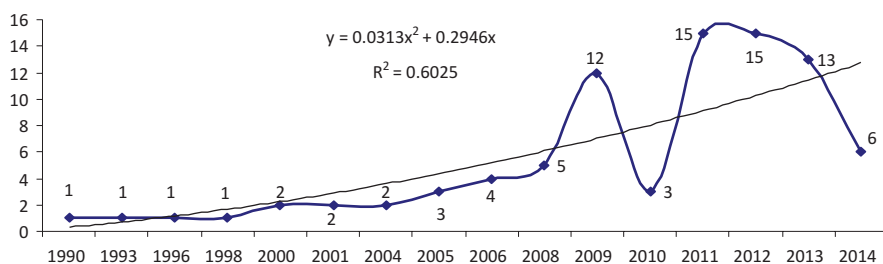
Of the total of 104 selected documents, this paper focuses exclusively on 86 articles published between the years 1990 and 2014, which will make up the basis of the bibliometric and bibliographic analysis, i.e., the following are excluded for their study: surveys, reviews, notes, publishers, conferences, and book chapters.

As shown in Fig. 19.2, from a time perspective, production remains without any great changes until 2009 with 5 or fewer articles. It is from this year onward when the number of publications (12) increases significantly reaching its peak in 2011 (15). A fact to be noted is the lack of articles in 2010 (3) and 2014 (6).

Taking into account the coefficient of determination ( $R^2$ ) of second-order polynomial trend line, we can deduce a tendency to increase the number of articles published in the following years related to quality management in sport.

### 19.4.2 Authors

There are not many authors who have published more than one article, only 13 of all of them have written more than 2 articles. The Spanish author Alberto Nuviala of the University Pablo de Olavide (Sevilla) stands out as the most productive author with 5 articles (Table 19.1).



**Fig. 19.2** Evolution of the number of articles on quality management in sport collected in Scopus (Source: Authors)

**Table 19.1** Table of the most relevant authors

| Author                     | No. Articles | Country       |
|----------------------------|--------------|---------------|
| Nuviala, Alberto           | 5            | Spain         |
| Chelladurai, Packianathan  | 4            | United States |
| De Knop, Paul              | 4            | Belgium       |
| Ko, Yongjae                | 4            | United States |
| Nuviala, Román             | 4            | Spain         |
| Sánchez, Verónica Morales  | 4            | Spain         |
| Theodorakis, Nicholas D    | 4            | Greece        |
| Martínez, José A           | 3            | Spain         |
| Martínez, Laura            | 3            | Spain         |
| Pérez-Turpín, José Antonio | 3            | Spain         |
| Tamayo, Javier A Fajardo   | 3            | Spain         |
| Trail, Galen T.            | 3            | United States |
| Yildiz, Süleyman Murat     | 3            | Turkey        |

Source: Authors

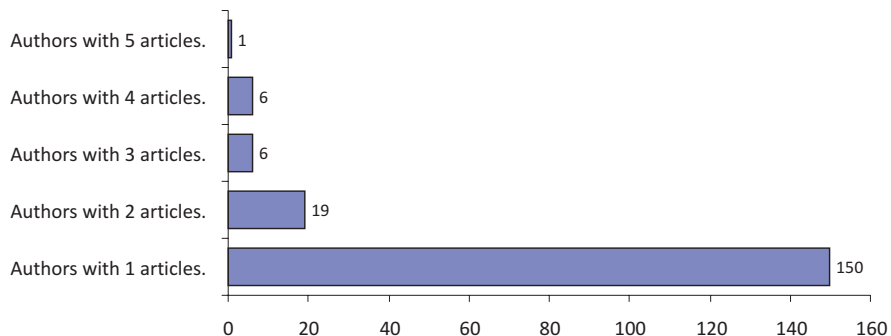


**Fig. 19.3** Map of the authors' countries of origin (Source: Authors)

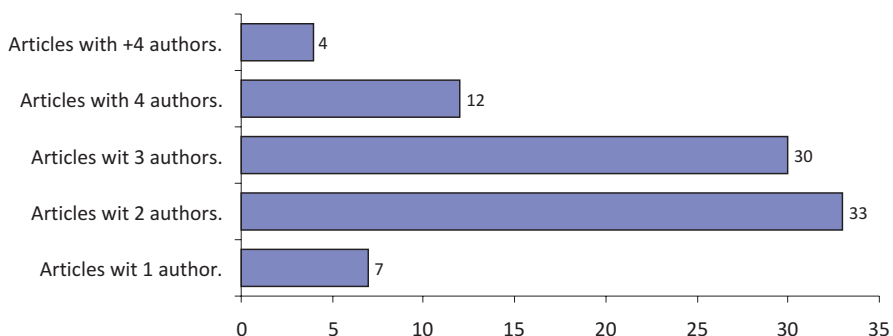
We can observe that the United States and Spain are the countries with the greatest relevance in indexed academic literature in the Scopus database on quality management in sport. Figure 19.3 shows the production by geographical areas; countries of the Pacific (Australia) and Asia (Taiwan) have to be added to North America and Europe.

Analyzing productivity, it can be seen that 182 different authors appear in the 86 articles selected, of which only 32 (17.58%) have 2 or more articles published (Fig. 19.4). With a total of 235 authorships, the average number of articles by author was 1.29.

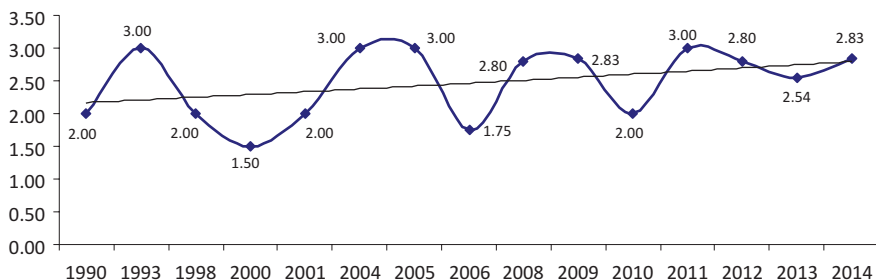
The analysis of the number of authors who sign each work reveals the tendency to work in teams (91.86%), as shown in Fig. 19.5. Articles signed by 2 or 3 authors predominate with 73.26%.



**Fig. 19.4** Productivity (Source: Authors)



**Fig. 19.5** Authors by article (Source: Authors)



**Fig. 19.6** Collaboration index (Source: Authors)

On the other hand, to calculate the collaboration index (Fig. 19.6), defined as the average number of signatures, 2006 was left out as it only had one article and 8 authors, which distorted the result. The collaboration index for the period 1990–2014 was 2.76.

### 19.4.3 Affiliation

The United States (25 centers, 36 authors, 48 authorships) and Spain (9 centers, 24 authors, 50 authorships) are the countries with the greatest relevance in indexed academic literature in the Scopus database on quality management in sport (Table 19.2 and 19.3).

**Table 19.2** Centers, authors, and authorship by their country of affiliation

| Country     | Centers | Authors | Authorship | Country        | Centers    | Authors    | Authorship |
|-------------|---------|---------|------------|----------------|------------|------------|------------|
| Australia   | 4       | 6       | 7          | Pakistan       | 2          | 2          | 2          |
| Belgium     | 3       | 8       | 12         | Portugal       | 2          | 2          | 2          |
| Brazil      | 2       | 4       | 4          | Romania        | 1          | 1          | 2          |
| Canada      | 3       | 7       | 7          | Singapore      | 1          | 1          | 1          |
| China       | 2       | 5       | 5          | South Africa   | 1          | 2          | 2          |
| Germany     | 9       | 12      | 13         | South Korea    | 7          | 9          | 9          |
| Greece      | 3       | 9       | 13         | Spain          | 9          | 24         | 50         |
| Iran        | 4       | 10      | 10         | Sweden         | 1          | 1          | 1          |
| Italy       | 2       | 8       | 8          | Taiwan         | 2          | 4          | 4          |
| Japan       | 1       | 1       | 2          | Thailand       | 2          | 2          | 2          |
| Lithuania   | 1       | 3       | 3          | Turkey         | 1          | 1          | 3          |
| Malaysia    | 1       | 2       | 2          | United Kingdom | 7          | 10         | 11         |
| Netherlands | 3       | 8       | 8          | United States  | 25         | 36         | 48         |
| New Zealand | 2       | 2       | 2          | <b>Total</b>   | <b>103</b> | <b>182</b> | <b>235</b> |
| Norway      | 2       | 2       | 2          |                |            |            |            |

Source: Authors

**Table 19.3** Most important centers due to the number of affiliated authors

| Centers                                    | Country     | Authors | N. Authorships |
|--|-------------|---------|----------------|
| Istituto di Medicina Dello Sport CONI-FMSI | Italy       | 7       | 7              |
| Universidad Pablo de Olavide               | Spain       | 7       | 16             |
| Universidad de Malaga                      | Spain       | 6       | 13             |
| Vrije Universiteit Brussel                 | Belgium     | 5       | 9              |
| Aristotle University of Thessaloniki       | Greece      | 5       | 8              |
| Islamic Azad University Tehran             | Iran        | 5       | 5              |
| Donghua University                         | China       | 4       | 4              |
| Utrecht University                         | Netherlands | 4       | 4              |

Source: Authors

### 19.4.4 Journals

The 86 articles found in the Scopus database were published in 51 different journals. It is highlighted that 41 of them (83.39%) published only 1 work (47.67% of the total), and only 10 include two or more works. *Sport Management Review* (8), *Journal of Sport Management* (8), and *International Journal of Sport Management and Marketing* (7) stand out as the most productive (Table 19.4).

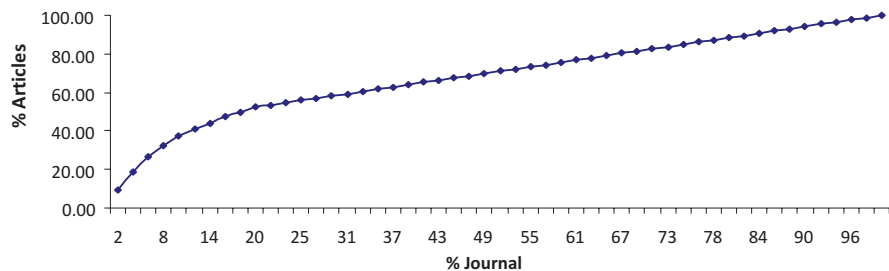
According to the law of Bradford (1934), a small number of journals include the majority of published articles relating to an area, a fact which allows us to identify the most used journals by researchers. By means of the Lorenz curve (Fig. 19.7), it was found that 19% of the journals (10) published 52% of articles (45) on quality management in sport.

The dispersion of articles, calculated as the number of articles per journal, was 1.69 articles per journal.

**Table 19.4** Ranking of journals with a greater number of published articles

| Journals   | Articles | %      |
|--|----------|--------|
| <i>Sport Management Review</i>   | 8        | 9.30%  |
| <i>Journal of Sport Management</i>   | 8        | 9.30%  |
| <i>International Journal of Sport Management and Marketing</i>                           | 7        | 8.14%  |
| <i>Cuadernos de Psicología del Deporte</i>   | 5        | 5.81%  |
| <i>Revista Internacional de Medicina y Ciencias de la Actividad Física y del Deporte</i> | 4        | 4.65%  |
| <i>Zeitschrift fur Sportpsychologie</i>  | 3        | 3.49%  |
| <i>Managing Service Quality</i>  | 3        | 3.49%  |
| <i>International Journal of Sports Marketing and Sponsorship</i>                         | 3        | 3.49%  |
| <i>World Applied Sciences Journal</i>  | 2        | 2.33%  |
| <i>European Sport Management Quarterly</i>   | 2        | 2.33%  |
| 41 Magazines with 1 item   | 41       | 47.67% |

Source: Authors



**Fig. 19.7** Lorenz curve (Source: Authors)

### 19.4.5 Areas and Subject Categories

Subject classification of articles following the criteria of the Scopus database, and considering the areas to which the journals where the articles are published belong to (Fig. 19.8), shows that 45 of them (52.33%) are included within the Business, Management and Accounting areas. The Decision Sciences area only has 5 journals, which include 25 articles (29.07%).

### 19.4.6 Bibliometrics

In terms of research methodology, empirical and theoretical works are distinguished, considering that the scientific nature of an article will be reflected by the presence of an empirical study in it. The selected articles that use experimental techniques (87%) predominate over those based on theoretical methods (13%). Within the first group of documents, we found both the use of surveys (De Knop et al. 2004) and case studies (Parent et al. 2009).

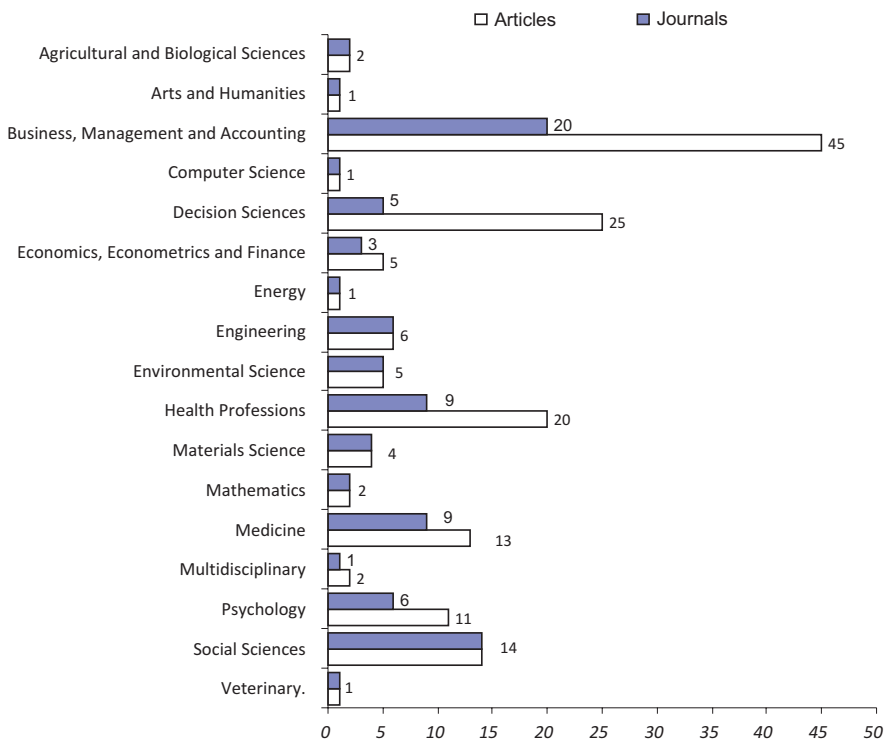


Fig. 19.8 Classification of journals and articles by subject area (Source: Authors)

As was logical to expect when dealing with quality management in sports organizations, the papers included in the service sector account for 94% of the total number. Only 6% of the selected articles are classified within the industrial sector by referring to, for example, the manufacture of sports equipment (Hauge and Power 2013).

The aim of this section is to examine the different subject areas that are discussed in the articles on quality management in sport, in order to determine the lines of research to which more attention has been given. From the study of the selected articles, we can group the research lines covered into 12 major areas that reflect the main subjects (Fig. 19.9).

The main subject discussed is *Quality Assessment* in 51% of cases. In this area, studies that evaluate perceived quality, satisfaction, and perceived value among customers of events (Parent et al. 2009) or sports services (Nuvila et al. 2012) are included.

Secondly and closely related to quality assessment, we find the *Customer Behavior* block (22%). In this group, studies examining the relationship between service quality, customer satisfaction, and behavioral intentions are collected, i.e., the role played by quality in future customer behavior (Murray and Howat 2002).

*Quality Management* (12%), which appears in the third place, brings together those studies discussing everything related to quality within an organization (De Knop et al. 2004), geographical area (Van Hoecke et al. 2009), or industry (Wäsche et al. 2013), from a global and general perspective. An area different from quality management is the denominated *Management Models* (7%), which is made up of those articles that discuss different management systems, their implementation, or impact on the company: Total Quality Management (TQM) (Sharifi-Moghadam et al. 2013), Deming Management Model (Rodrigues et al. 2014), and European Foundation for Quality Management (EFQM) (Kleinert and Brand 2011). It includes works on the ISO 9000 (Abdi et al. 2008).

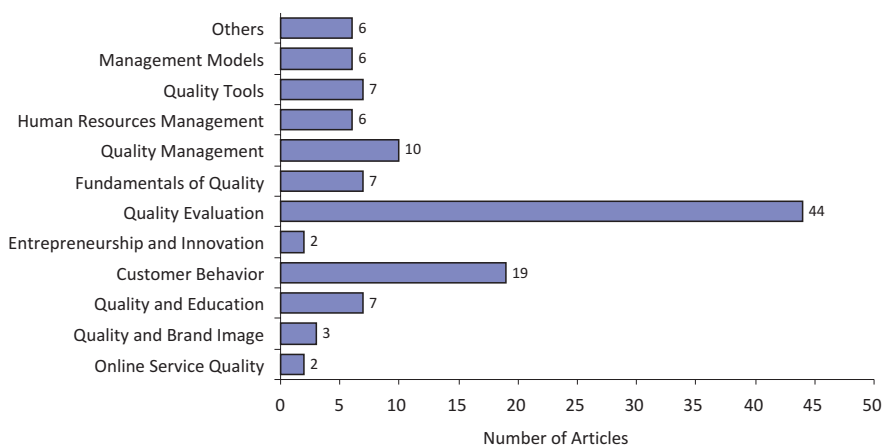
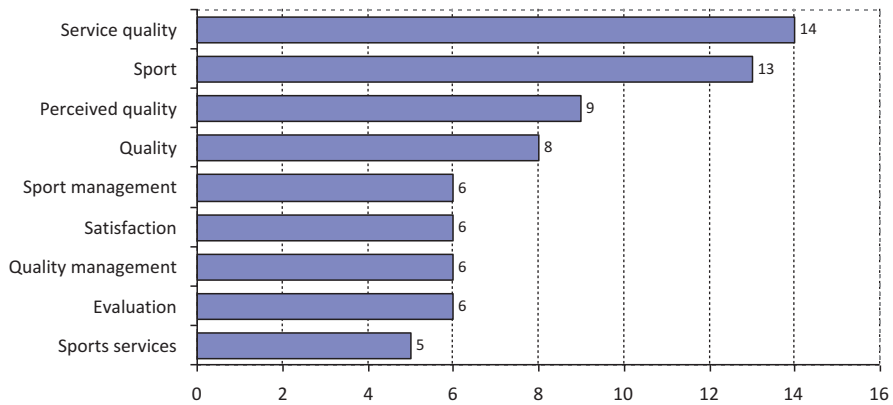


Fig. 19.9 Classification of the subjects discussed in the articles (Source: Authors)



**Fig. 19.10** Most relevant keywords (*Source:* Authors)

We find 8% of categories such as *Quality Tools*, where studies on the instruments that have been developed to facilitate quality management are included (Gonzalez et al. 2011); *Fundamentals of Quality*, where the principles on which quality is based (Yoshida and James 2011) are classified; and *Quality and Education*, which contains the quality in teaching sport or sports training (Soares and Van Den Tillaar 2012). Another area worth mentioning is *Human Resource Management* (7%), where studies dealing with the importance of human resources in quality management in sport are collected (Zamzam et al. 2014).

Finally, the category *Others* collects the articles that are not classified in other areas with such diverse topics as the quality of the detection process of sports talents (Mazzei et al. 2014) or the quality measuring system SERVQUAL (Lan 2013).

Very useful information when locating previous documents related to our research area is to know those terms used as keywords. In this sense, Service Quality and Sport are the most used by the selected articles for our study, in 14 (16.28%) and 13 (15.12%) cases, respectively, followed by Perceived Quality (9) and Quality (words 8) (Fig. 19.10).

## 19.5 Conclusions

Implementing and developing quality management models in all types of organizations, including companies within the service sector, is today an unavoidable issue. The main purpose of this work has been to perform, by means of quantitative bibliometric methods, a review of the scientific literature contained within the Scopus database in order to respond to whom, what, where, how, and how much research is done related to quality management in sport at international level. At the same time, the second goal was to establish and define those areas and subjects of the study, which to a large extent have been developed within this area of quality management.



In view of the results and the extensive bibliography, we are able to extract a set of conclusions whose purpose is to help future researchers in this field:

- (a) Researchers choose the article published in scientific journals as a means to publicize their findings on the issue of quality management in sport. Although the first article appeared in 1990, it is not until 2009 when there started to be a real growth in production, achieving the best results in 2011 and being able to deduce an increasing trend in the number of articles to be published in the following years.
- (b) The vast majority of authors (82%) have published only one article and there are very few who could be considered prolific with four or more papers. For this reason, the productivity index is low (number of articles by author), which is close to one.
- (c) As we know, the collaboration in the performance of certain studies has certain advantages, such as receiving a greater number of quotes (Granda-Orive et al. 2009:43). The collaboration index shows the existence of a high percentage of articles in which two or three authors are involved as opposed to the minority of papers by a single author.
- (d) The United States and Spain are the two countries with the greatest relevancy regarding the number of authorships, authors, and affiliation centers, of which 90% are universities.
- (e) The results of this study show that most articles on quality management in sport are published in a small number of journals, thus complying with the so-called bibliometric law of Bradford. *Sport Management Review*, *Journal of Sport Management*, and *International Journal of Sport Management and Marketing* contain more than 26% of the articles.
- (f) A large number of articles are included in several subject categories, which demonstrates the difficulty of classifying the works by areas. *Business, Management and Accounting*, *Decision Sciences*, or categories related to health are the most prominent.
- (g) As was seen in other studies, for quality management in general (Del Rio-Rama and Martinez-Carballo 2007), in the area of sport, a majority of empirical papers are observed as opposed to those whose basic content is theoretical. Research techniques that appear most frequently are the survey and case studies.
- (h) Companies that conduct their business in the sports world are to a high degree classified within the service sector, as they deal with quality management in sports organizations; thus, works included within the service sector account for 94% of the total.
- (i) The main issue discussed in papers on quality management in sport is everything related to *Quality Assessment*, satisfaction, and perceived value by customers and the relationship between it and users' future intentions and behavior.

Among the topics discussed, the denominated *Management Models* deal with different management systems, their implementation, or impact on the company: Total Quality Management (TQM), Deming Management Model,

and European Foundation of Quality Management (EFQM), or work on ISO 9001 figure prominently.

- (j) To locate documents related to quality management in sport by searching for terms within the Scopus database, it is advisable to use keywords related, as would be logical, like Quality and Sport, especially Service Quality and Sport Services.

In summary, the production of scientific papers relating to quality management in sport has experienced significant growth in the past 5 years, highlighting countries like the United States and Spain at international level and whose main subject revolves around the perception of quality and customer intentions. As in other areas, the instrument used by the authors to disseminate their work is the scientific journal, but due to its multidisciplinary nature, it becomes difficult to classify them into a single subject category.

When presenting the results, the limitation involved when choosing a particular source of information and defining a specific search profile should be taken into account, in our case the Scopus database. The aim was not to perform an analysis of the quality of the content of the documents, which may be the objective of further investigation, but a descriptive-quantitative analysis of the papers on quality management in sports. It would be interesting, as a way to extend this research, for future studies to analyze the indexed papers in other databases, in addition to the possibility of including comparative analysis between them.

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## Chapter 20

# Guardiola, Mourinho and Del Bosque: Three Different Leadership and Personal Branding Styles

Antonio Alonso-Gonzalez, Pablo Alamo-Hernandez, and Marta Peris-Ortiz

**Abstract** The present study aims to relate to the importance of the concepts of leadership and personal branding, focusing on the three most renowned coaches in recent years: Vicente del Bosque, Jose Mourinho and Pep Guardiola. All three are highly successful figures in their respective careers, but they have different styles of leadership, sports management and personality, which results in, each case, a personal brand that is unique and different. To carry out this assessment, the concepts of leadership and personal branding relating to the sports field were analysed and specifically the implications on coaches and managers. Therefore, the career of each of these three coaches was studied and comprehensively evaluated, to identify their leadership and personal brand singularities, using a methodology based on two steps: a state-of-the-art review of the concepts described and applied to Vicente del Bosque, Jose Mourinho and Pep Guardiola and a field investigation that supported and gave significance to the state of art reviewed and to the conclusions derived from this study. The research concludes that these coaches are unrivalled in relation to their leadership and personal branding style: Jose Mourinho as a tactician and motivator of players, prioritizing short-term results; Pep Guardiola in strategic dimensions, ongoing learning and emphasizing the importance of aesthetic soccer; and Vicente del Bosque in creating a team with a good working environment and interpersonal skills, highlighting the unity and loyalty of the team above and beyond the short-term results. The limitations of leadership style and personal branding of these three trainers were also highlighted in the present research.

**Keywords** Branding • Coach • FIFA • Jose Mourinho • Leadership • Manager • Marketing • Pep Guardiola • Personal brand • Personal branding • Personal marketing • Soccer • Sport • Sports career • Sports management • Sports marketing • Transactional leadership • Transcendent leadership • Transforming leadership • Vicente Del Bosque

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## 20.1 Introduction

Sport fascinates most of humanity, especially in this age of globalized communications. The great sports idols become protagonists of media spotlight in newspapers, blogs, television and social media. Likewise, the coaches and managers of great teams become protagonists of the great media circus (Blanco-Encinosa 2015). Sport transmits the prevailing social values of any society. It possesses a certain utopian function, as an ideal of noble confrontation subject to rules, and the pursuit of excellence and perfection. Sport is a social construction, and for this reason, the responsibility for safeguarding the classic values of fair play, justice, camaraderie and respect is enormous (Sanchez-Pato 2013).

Within sports, soccer is a mass phenomenon. Only in Spain, more than 20,000 matches are played every weekend, involving not only players but also managerial and logistical teams, referees, family members and general audiences. For an average of 25 protagonists per game, there are 500,000 people who directly practice this game. The impact of soccer on media is also huge. In the Premier League and the Spanish Liga, there is an audience attendance of more than 30 million people, and these figures are surpassed in countries like Brazil, Italy, Mexico and Argentina. Almost 4% of the world's populations (over 270 million people) have some kind of relationship with soccer, a sport practised by 240 million players, belonging to 1.5 million teams. The most representative soccer event is the World Cup that is organized every 4 years, a showcase of talent, passions and brands.

According to Cdaa (2016), aligned to the sociological phenomenon is the economic one. Deloitte revealed in its 2016 Annual Review of Football Finance report that the total revenues of the five major European leagues were around €12 billion in 2014/2015 season. Eighty-nine per cent of the additional income generated by these five major European leagues went to address the wage costs. The European market, especially the Premier League, and the Asian one, driven by China, are expected to experience a significant growth in costs and investment. The Premier League clubs recorded a global profitability for the second consecutive year, which is expected to continue to grow by about 20%. In other words, football moves a lot of money, and if it were considered as an independent economy, it would be placed in the 17th position worldwide, above nations like Switzerland, Belgium and Taiwan, with US \$ 500 billion of GDP.

Soccer, as a modern sport developed in a high-performance context, is characterized by its increasing complexity, which demands a high level of professionalization not only from athletes but also from coaches. Indeed, together with traditional technical and tactical functions, there is a need to know how to manage increasingly heterogeneous groups of people. Jimenez-Saiz et al. (2015) argues that coaches require leadership, communication skills and motivational abilities, in addition to a large amount of specific knowledge.

As a result of a greater awareness of the importance of a coach's role, various awards emerged to enhance the achievements of the best technical directors. Perhaps the most important of all is sponsored by the Fédération Internationale de Football



Association (FIFA). In this scenario, the FIFA Ballon d'Or Gala, which takes place in Zürich, Switzerland, is awarded to the FIFA World Coach of the Year. In 2010, the official candidates were announced on October 26 and there were ten nominees:

1. Carlo Ancelotti (Italy/Chelsea F.C.)
2. Vicente del Bosque (Spain, Spain National Team)
3. Alex Ferguson (Scotland, Manchester United F.C.)
4. Pep Guardiola (Spain, F.C. Barcelona)
5. Joachim Low (Germany, Germany National Team)
6. Jose Mourinho (Portugal, F.C. Internazionale Milano and Real Madrid C.F.)
7. Oscar Tabarez (Uruguay, Uruguay National Team)
8. Louis Van Gaal (Netherlands, F.C. Bayern Munich)
9. Bert Van Marwijk (Netherlands, Netherlands National Team)
10. Arsene Wenger (France, Arsenal F.C.)

On December 6 of the same year, FIFA chose a list of candidates with the greatest achievements at the end of the soccer season. The three finalists were Vicente del Bosque (Spain, Spain National Team), Pep Guardiola (Spain, F.C. Barcelona) and Jose Mourinho (Portugal, F.C. Internazionale Milano and Real Madrid C.F.). The jury members (captains, press and coaches) were asked to select the best candidate for the FIFA World Coach of the Year, and on that occasion, the award went to Jose Mourinho, in 2011 the award was won by Pep Guardiola, and in 2012 it went to Vicente del Bosque.

This research paper aims to identify and relate to the aspects and elements that establish the particular leadership and personal brand of these three successful coaches: Vicente del Bosque, Jose Mourinho and Pep Guardiola. In the theoretical background section, the concepts of leadership and personal branding will be described, as well as their relationship with sports management. It will also highlight Vicente del Bosque, Jose Mourinho and Pep Guardiola's successful careers and considerable achievements. The methodology section will describe the procedures that were performed to analyse the three different profiles, emphasizing in the results section the most important facts relating to leadership and personal brand, based on an intensive literature review and our research. Finally, in the conclusions and future research section, the main results and findings made in the study will be grouped and commented, giving some alignments in future research.

## 20.2 Theoretical Background

It is important in this section to introduce the concepts of leadership and personal branding, as well as their implications in the area of sports, relating to the successful people that can be found in this field, focusing mainly on coaches or managers. To do so, both terms have been analysed, and a thorough review of Vicente del Bosque, Jose Mourinho and Pep Guardiola's careers has been undertaken, focusing on their main successes and achievements, with unique leadership skills and strong and successful personal brands.

### ***20.2.1 The Leadership Dimension***

The professionalization of our contemporary society implies a greater specialization and technification. This has led to increased knowledge and applicability. There is a greater degree of resources for observing rivals, for example, the recording of training in order to analyse the performance of the players. In this context, the importance of the role of the soccer coach should be highlighted. Authors like Carvajal-Paredes (2013) define the coaches' role as a synthesis of the relationship between the practice of sport and society. Other key elements that high-performance coaches must know are skills related to managing success, motivating talent and being able to react to the unpredictable. One of the great lessons that soccer leaves as a metaphor for life is that human creativity and freedom have the power to create unexpected moments that were not under the coach's control.

Gomes-Palmares (2013) argues that any team manager must consider two things when outlining his overall strategy: the resemblances common to every team (such as the need for a leader, the need for motivation/confidence and the demand for a good environment) and the ability to shape the strategy (standardizing and/or adapting, reckoning differences and overcoming any type of limitations). Nowadays, soccer has a worldwide impact with vast media coverage, so it is important to consider the manager's relationship with supporters and the media. On the other hand, regarding the manager's ability to shape his strategy, it becomes clear that even though there are some similarities, technical aspects are predominantly standardized while human issues have a tendency to be customized.

In elite soccer, there are similar high levels of physical, technical and tactical skills amongst athletes. However, it is difficult to successfully train players with the highest standards of performance. Besides, the majority of coaches and athletes recognize the importance of mental factors in order to maximize their performance. Thus, it is important to find a way to integrate this element successfully within the daily training process (De Carvalho and Guadalupe 2011). Blanco-Encinosa (2015) argues in his study that the observation of the actions of outstanding sports leaders should not only be useful from the sports' point of view, but also it would be recommended to be shared with people interested in business management. These top sport managers apply techniques, tools and methods compatible with any business environment, showing skills related to creativity and innovation, where decisions are based, above all, on common sense. Therefore, these sport leaders managed to fulfil their dreams, and their example can help society, companies and the public to fulfil their dreams too.

### ***20.2.2 The Personal Branding Dimension***

The personal brand idea has existed since the origins of mankind but has emerged as a concept in the 1990s as an evolution of the concept of corporate branding applied to individuals. It can be defined as the asset consisting of the public

perception of a person based on their distinctive attributes. From this definition, the fundamental elements of the brand as an asset can be extracted: the differentiating characteristics of the person and the positioning of these in people's mind. The personal brand concept can also refer to the process by which it is created and managed. This process is divided into three stages: analysis of personal identity, communication to achieve a desired positioning and evaluation of strategies to achieve it (Ramos-Redondo 2015).

Tom Peters started the concept of personal branding through his article published in 1997 in *Fast Company* magazine, *The brand called you*, introducing the concept of "Me Inc", encouraging to think about what differentiates a professional from the rest of colleagues and competitors. According to Peters (1997), the professional is the owner of his own company. Shortly after, Peters (1999) wrote his book *The Brand You 50 (Reinventing Work): Fifty Ways to Transform Yourself from an Employee into a Brand that Shouts Distinction, Commitment, and Passion!* and it became a leader in this field of study. It was Peter Drucker who finished pushing the movement of personal branding as a new concept with his article *Managing Oneself* in 2005. In that contribution, Drucker (2005) emphasized the importance of identifying the strengths of any individual and focusing on improving them consistently.

Personal branding is one of the most important assets of any individual, being an intangible but fundamental aspect and representing the promise of value, consistency, coherence, confidence, emotion, sincerity and the set of expectations above all. The personal brand is the perception that the environment has of the excellent, different and outstanding attributes of an individual, to be considered and taken into account for those who need his or her services. It occupies a place in people's minds and therefore it is a type of positioning, being considered as a strategy of personal growth that goes beyond marketing. The objective behind this is to be perceived as a unique and singular person or professional who brings clear benefits to the market in which or whom he or she works (Perez-Ortega 2008). Personal branding is essential for any professional's career development and a very effective tool due to his performance in defining who the professional is, what the professional represents, what makes the professional unique and why the professional should be sought and chosen. People want to do business with well-known and considered professionals, especially if these people feel connected or identified with this professional. If a familiar and pleasant personal brand is built, people will feel empathy and the probability to make business will be higher (Rampersad 2009). Thus, the personal brand concept is a trending topic nowadays, due to the mediation of the current world and society. Actors, singers, sports professionals and models become referents for important consumer groups, and as the big brands do, these characters perform actions to gain notoriety and increase the value of their personal brands (Alonso-Alonso 2014).

In the sports field, Roldan-Arias (2015) performed a study in which they analysed the influence and impact of values and aspects of private life, which significantly influences the personal brand perception of a well-known sports personality such as Lionel Messi. Silva-Vaca (2016) developed a study concerning the impact of personal branding strategies in sports journalism, a very competitive and media-exposed profession, in which a personal brand could make the difference within the

competition. Soft communication skills are very important in sports journalism, in order to get and maintain a loyal audience, not only through the conventional communication channels but also in digital media, such as Twitter, Facebook, LinkedIn, YouTube, Periscope and Blogs. The positioning of the professional around some identity aspects, for example, the style of communication, contents, image, specialty and affinity with the target audience, is also very important, focusing the personal branding on three dimensions: journalistic attributes, positioning and brand architecture. The recommendations of the author from his study is to develop a personal brand in sports journalism based on veracity, independence, impartiality, contents and target audience, avoiding arrogance, complacency and audience disconnection.

Specifically in sports management, Zamora-Saborit et al. (2016) state that only a small group of elite athletes and professionals are able to attract media interest and large audiences. Actually, the current sports industry is surrounded by an amalgam of managers with conflicting interests and without a strategic perspective, using obsolete concepts and employing inappropriate tools. Besides, there is no integrated model that provides a unique sports personal branding methodology. The current strategies are focused mainly on copyright exploitation, commercial communications, trademarks and image and media rights, rather than building a personal brand to centralize short-term tasks. Therefore, the authors explain the necessity to present a sports professional profile with knowledge to adapt and take advantage of existing and new opportunities, helping the athlete, player or manager to connect with fans, followers and different audiences without intermediaries nor limits of time, schedules or distance. Strengthening the personal brand is a must, and this task should not be based only on exploiting an image to market its products or services but also on building a personal brand with added value, regardless of the economic exploitation.

### ***20.2.3 Vicente del Bosque, Guardiola, and Mourinho: Three Successful Careers***

Vicente del Bosque is an example of success in soccer. As a player, he practically completed his career at Real Madrid C.F. (1968–1984), having played a total of 339 official matches. He played 18 matches as a full international player with the Spain National Team (1975–1980). As a Real Madrid player, he won many titles: the Spanish Liga (5) (1974–1975, 1975–1976, 1977–1978, 1978–1979 and 1979–1980) and Spanish King's Cup (4) (1974, 1975, 1980 and 1982). As a coach, he predominately directed Real Madrid C.F. (1999–2003), achieving important titles such as the Intercontinental Cup (1) (2002), UEFA Champions League (2) (1999–2000 and 2001–2002), Spanish Liga (2) (2000–2001 and 2002–2003), Spanish Super Cup (1) (2001) and UEFA Super Cup (1) (2002). In the Spain National Team (2008–2016), he achieved a World Cup (1) (2010) and UEFA European Championship (1) (2012). To date, he is the only football manager to have won the UEFA Champions League,

the UEFA European Championship and the World Cup, as well as the Intercontinental Cup. In January 2017, Vicente del Bosque was named amongst the 10 greatest coaches since the foundation of UEFA in 1954. At the individual level, he was honoured by FIFA as the FIFA World Coach of the Year in 2003 and 2012 and the Best European Coach in 2002. At an honorary level, he was awarded by King Juan Carlos I of Spain on February 3, 2011, the title of First Marquis of del Bosque.

Another worldwide phenomenon in soccer is Jose Mourinho. Starting his career as a coach in Portugal (Benfica, Leiria and Porto), and after winning the major leagues and European cups, he moved to the UK (Chelsea Football Club), then to Italy (Inter Milan), Spain (Real Madrid) and again the UK (Chelsea and Manchester United). Mourinho has achieved considerable success in his career, making the difference in soccer worldwide with an excellent curriculum: UEFA Champions League (2) (2003–2004 and 2009–2010), UEFA Cup (1) (2002–2003), Portuguese Primeira Liga (2) (2002–2003 and 2003–2004), Portuguese Cup (1) (2002–2003), Portuguese Super Cup (1) (2003–2004), English Premier League (3) (2004–2005, 2005–2006 and 2014–2015), English Cup (1) (2006–2007), English Super Cup (1) (2005), English League Cup (4) (2004–2005, 2006–2007, 2014–2015 and 2016–2017), English Community Shield (1) (2016), Italian Calcio (2) (2008–2009 and 2009–2010), Italian Cup (1) (2009–2010), Italian Super Cup (1) (2008), Spanish Liga (1) (2012), Spanish King's Cup (1) (2011) and Spanish Super Cup (1) (2012).

According to Mourinho, his most important successes are the collective titles, although at an individual level he had been honoured as the FIFA World Coach of the Year at the first edition of the 2010 award and also designated 4 years as the IFFHS World's Best Club Coach (2004, 2005, 2010 and 2012). He is one of only five coaches to have won the Champions League with two different teams (Porto and Inter Milan) and the only one to win three of the five major leagues (England, Italy and Spain), in addition to the Portuguese. In the UK he is known as “the Special One”, in Italy as “Lo Speciale”, and in Spain as “El Especial”.

The last figure to be introduced in the present work is Pep Guardiola. As a soccer player, Guardiola played as a midfielder and spent most of his professional career at F.C. Barcelona during the 1990s, with which he won the Spanish Liga (6) (1990–1991, 1991–1992, 1992–1993, 1993–1994, 1997–1998 and 1998–1999), Spanish King's Cup (2) (1997 and 1998), Spanish Super Cup (4) (1991, 1992, 1994 and 1996), UEFA Champions League (1) (1992), UEFA Cup Winners' Cup (1), (1997) and UEFA Super Cup (2) (1992 and 1997). With the Spain National Team, he won a gold medal in the 1992 Summer Olympic Games and also participated in the World Cup in 1994 and the UEFA European Championship in 2000.

Guardiola was the coach of the F.C. Barcelona team from July 2008 to June 2012, a period in which he won 14 titles: the Spanish Liga (3) (2008–2009, 2009–2010 and 2010–2011), Spanish King's Cup (2) (2009 and 2012), Spanish Super Cup (3) (2009, 2010 and 2011), UEFA Champions League (2) (2009 and 2011), UEFA Super Cup (2) (2009 and 2011) and FIFA Club World Cup (2) (2009 and 2011). In 2019 with F.C. Barcelona, he consecutively won six titles in the same year: the Spanish King's Cup, Spanish Liga, UEFA Champions League, Spanish Super Cup, UEFA Super Cup and FIFA Club World Cup. Consequently, Guardiola became the

first soccer coach in history to win six official titles in a single year. Only six other European teams have achieved the so-called Sextet, but none have achieved the six trophies in the same calendar year. He was awarded IFFHS World's Best Club Coach in 2009 and 2011 and FIFA World Coach of the Year in 2011. In 2010, he was awarded the Gold Medal of the Royal Order of Sports Merit, the maximum individual distinction in the sport granted in Spain. From July 27, 2013, to June 30, 2016, he was the Bayern Munich coach with whom he won the European Super Cup (1) (2013), FIFA Club World Cup (1) (2013), German Bundesliga (3) (2013–2014, 2014–2015 and 2015–2016) and German Cup (2) (2014 and 2016). In total, he achieved 21 official titles in his career as a coach.

### **20.3 Methodology**

The methodology applied in the present study to analyse the leadership and personal brand styles of Vicente del Bosque, Jose Mourinho and Pep Guardiola was based on two different factors: First, an extensive analysis of the work was carried out in order to identify and fix the character of the three personalities in terms of their leadership and personal branding skills and abilities. This work was complemented by the research carried out in the second part of the methodological development, in which a primary data-based research study was conducted in order to be able to add significance to the previous state-of-the-art review and to the results and subsequent conclusions.

### **20.4 Results**

The results presented in this research paper state that each of the three managers studied represents a different style of leadership and a strong but unique personal brand. This section describes the findings and results found in previous studies, in which the various authors and researchers describe Vicente del Bosque, Jose Mourinho and Pep Guardiola's leadership profile and personal brand. Furthermore, a concise field research was conducted, based on primary data to reinforce these results and to develop robust conclusions in the last section of the research paper.

#### ***20.4.1 Vicente del Bosque: The Humble Leader with a Chivalrous Personal Brand***

According to Sanchez-Pato (2013), Vicente del Bosque speaks a simple, direct language without any ambiguity. Everybody understands him and that denotes his humanity, with imperishable values that identify his character, which his profile

based on sacrifice, talent, discipline, solidarity and modesty. In relation to leadership and personal branding, Vicente del Bosque is a strong managerial, professional and personal model when he is studied from different knowledge perspectives, for example, marketing, business management, psychology, sports sciences, history and also through diverse concepts such as coaching, leadership and emotional intelligence. His institutional loyalty to Real Madrid, demonstrated during 36 years occupying different positions, is remarkable as a player (from the farm teams to veteran categories), coach (from the base to the elite) and manager.

Under the direction of Vicente del Bosque, the Spain National Team represented what football and sport should be: fair play with no place for arrogance and violence. In that team, there was imagination, elegance, dexterity, athleticism, enthusiasm and chivalry, converging with a technical deployment at its highest level. In the field or from the sidelines, every player knew what he had to do, but with room to develop his individuality and creativity. del Bosque's model of management implies integration, synergy, mutual support and common objectives. This model exists because the team knows that they cannot achieve global success as individuals. The system is not a sum of individuals, but an integration of efforts and capabilities. This ethos is so strong that even with the departure of team members and the arrival of new ones, the main structure survives (Blanco-Encinosa 2015).

Sanchez-Pato (2013) describes Vicente del Bosque as a model both of exquisite behaviour adjusted to the referred values and in the humility of giving protagonism to his players. As a soccer professor, he reflects the affection and admiration by people and colleagues, because he is able to propose goals and motivate the group to achieve them. Firstly, as a soccer player, he demonstrated on the pitch that his values were related to tranquillity, commitment and nobility, retaining them as a career coach and as a person, conveying them through confidence and security to those around him. Secondly, as a coach, he showed his remarkable human dimension, as the highest and most exquisite mission that can be performed on the sports field. del Bosque has without a doubt a technical expertise which is emphasized by his sporting success but, at the same time, strong human values, proving that he is a good person.

Taking into account all the facts mentioned above, in terms of leadership and personal branding, Vicente del Bosque could be described as a humble leader with a chivalrous personal brand.

#### ***20.4.2 Jose Mourinho: The Paternal Leader with a Provocative Personal Brand***

According to Gomes-Palmares (2013), Jose Mourinho's career is filled with achievements: league titles, national and European cups and individual awards. He could be considered as a "glocal" manager. In 12 years as a manager, he was able to win everything at a national level in four different countries, Portugal, England, Italy and Spain, which demonstrates an impressive capacity to deal with different scenarios.

What turns Mourinho into such a successful manager, and consequently into such a desirable “product”, is his ability to explore the needs and values which are common to each stakeholder (players, supporters, media and board of directors) in different countries. However, Mourinho’s greatest ability is his relationship with the players, and this strategy has strong similarities with the business world, where managerial implications relating to human resources management have great significance. The strategies used by the Portuguese manager to satisfy the group’s demands can have a general implementation, because they are a response to similar needs and values: the demand for a positive environment, the need for motivation and the need for leadership are common to any team, whether the scenario is sports or business. Therefore, in order to build a successful team, it is crucial for the manager to be able to respond to these elements.

De Carvalho and Guadalupe (2011) performed a study relating to Jose Mourinho’s leadership style, in different seasons and teams, in order to reach a pattern of Mourinho’s influence over the players. Their research paper demonstrates how much a team success depends on the coach and/or the players’ profiles. The authors took into account the psychological performance as an important available instrument in order to learn more about the mental training areas, revealing the players’ handicaps and the need for improvement. To perform this task, a questionnaire was given to the players, complemented with a qualitative approach analysis, with data collected through specific interviews (29 professional players: 21 from Chelsea and 8 from Benfica). Concerning the comparative analysis between the players that were trained by Mourinho and others, the authors could not identify significant statistical differences. However, some of the results demonstrated that Mourinho’s players had higher levels of self-confidence, attention, motivation and less negative thoughts. Therefore, Mourinho’s style proved that it is possible to change the performance of his players. His ability to do this is neither a physical question nor a technical/tactical one. He reaches the highest levels of performance in his teams through personal assessment and interviews with his players.

Mourinho’s communication style is a very important element to understand in relation to his personal brand. Putro (2014) in his study investigated the various speech patterns during two of Jose Mourinho’s postmatch interviews, analysing the possible meaning in the words of two different scenarios: a winning match interview and a losing match interview. The result showed 28 statements, which are mostly found in the losing match interview with 17 types of speech, while in the winning match interview, there are 11 types of speech. The types of speech or statements in the losing match interview are more various, than those in the winning match interview in relation to the reporter’s questions. However, in the losing match interview, there are representative, directive and expressive statements. The most dominant speech in both interviews is representative, which reached 16 statements in total.

Dias-Cardoso (2014) explains that these relationships with players were remarkable in F.C. Porto, Chelsea F.C. and F.C. Internazionale, where Mourinho was able to create a strong leadership that was translated into a unified and solid team, leveraging player’s capabilities and achieving success. Notably, people saw



the connection between the players in the way that they celebrated together and the genuine sadness at the departure of a colleague. However, Real Madrid C.F. was a different reality. At the time, Mourinho was unable to create a special relationship with his players, to unify the group, to embrace a consensual leadership and, most of all, to create a team, a family. The reason could be the lack of evaluation of the context and the culture at Real Madrid C.F., the lack of time to complete Mourinho's project and the need to manage the human resources in a different way. Perhaps the players were also unable to come to terms with Mourinho success. On this occasion, Mourinho failed to create a team and it is unlikely that he felt any sadness or remorse on his departure.

Mourinho is considered by many soccer experts as a provocative and controversial figure. His way of communicating and transmitting can sometimes be aggressive, mainly when his teams are facing adverse situations. However, these reactions can be considered as a personal strategy of defence, in trying to bring attention to himself, in order to deflect pressure from his players. So, in relation to leadership and personal branding, and taking into account the aggregate information from the previously mentioned analysis, Jose Mourinho could be described as a paternal leader with a provocative personal brand.

### ***20.4.3 Pep Guardiola: The Elegant Leader with a Philosophical Personal Brand***

According to Cubeiro (2010), Pep Guardiola as a leader is a born winner. Sports fans admire what he has achieved but above all how he achieved this due to his effort, knowledge, learning abilities, analytical skills and ongoing improvement. He is a living example of leadership, whether it is in the soccer arena or in any other sports discipline. After the disputed 2009–2010 season, in which F.C. Barcelona won the championship, in the last game, and broke the Spanish Liga record with 99 points, Guardiola behaved as always as a gentleman, showing values that could be summed up as the following: respect to the rival, risk as an opportunity, fans' appreciation, strong team identity and players' merit. Cubeiro (2010) in his study explained the surname GUARDIOLA as an acronym which in Spanish means:

- G for *Ganar* (win): Guardiola learned in “La Masia” how to win and transcend through this life as a winner. He put this into practice as a player, as coach of F.C. Barcelona B (which won the championship in its category) and as coach of one of the best teams in the world.
- U for *Unión* (unity): The team above its individuals, interpreting soccer as a valuable metaphor of what human beings can achieve when they cooperate. All for one and one for all.
- A for *Audacia* (audacity): Audacity and courage without falling into temerity, taking on uncalculated risks. Daring to keep one's own judgements, beyond criticism.

- R for *Rigor* (rigour): Almost obsessive attention to detail, using a strong self-discipline, effort, hardworking training, studying rivals from respect and using an almost detailed scientific analysis to obtain the best results. Success is not improvised; it is pursued.
- D for *Diversión* (fun): Talent as enjoyment, to be the protagonist of an activity that encourages and with which it can make others happy.
- I for *Innovación* (innovation): Restlessness learning from everything and everyone, with an ongoing improvement to keep setting the patterns to the highest standards, with excellence in all aspects of life.
- O for *Optimismo* (optimism): An explanatory style about what works well and what could have been done better, which allows facing the future in a hopeful way. The optimism should be an intelligent, laborious, practical discipline to achieve dreams that the team has been set.
- L for *Liderazgo* (leadership): Infuse energy from humility, from unshakable convictions, from illusion and passion.
- A for *Admiración* (admiration): Pep Guardiola made F.C. Barcelona the most admired team in the world. He himself became the most admired coach on the planet, not only for the results he achieved unique in the history of football but for the values he transmitted in achieving those goals.

Cubeiro and Gallardo (2009) explain that Pep Guardiola is a model of vocation, commitment to the institution, talent as a generator of value, coaching, leadership and motivation. Guardiola's leadership is based on simplicity, humility, hard work and obsession. He is an example as a professional and also as a person. It is a versatile, committed, inspiring leadership. In the same line, Escala (2009) argues that Pep Guardiola entrusts the management spirit of the twenty-first century. Paradigm of the great business schools, he manages his soccer teams with a colossal naturalness, all with a remarkable humility. Blanco-Encinosa (2015) explains that many people say Guardiola's F.C. Barcelona could be considered as the best team ever in the world. Behind those successes was Guardiola, with his philosophy of defending the total soccer style, but with the elegance and delicacy in its execution. At their peak, F.C. Barcelona could be compared to an art form. It looked like the players' shoes were made of silk. It was said that it was the best team in the world, and their results backed it. F.C. Barcelona was able to stroke the ball, made delicate plays and scored goals. And Pep Guardiola defended this style above all.

In terms of communication and personal branding, according to Pereira (2009), Guardiola is a simple character person, with great professional ambition. He does not like to be protagonist in the media. In his statements, he always names his players as the key elements of success in their teams. He is an example of a hardworking soccer professional who spends hours watching videos of rival teams with his players. He fulfils the maxims of a good leader, to be a teacher and an example to follow for his own. According to the authors, Pep Guardiola's leadership style could be named as an elegant leadership, with forms that do not require great discourses to be understood, combining teamwork with individual genius. The closeness with which he treats his players is also remarkable. Guardiola wants above all that his

players have a good time on the field. Rodriguez (2009) argues that every gesture of Guardiola denotes a high emotional intelligence, using in a masterful way the motivation of his players to achieve great successes in his teams. Serrano (2013) analysed Guardiola's abilities to communicate precise ideas or statements to media, being this in his profession vital to build up a strong personal brand.

Taking into account all the data mentioned previously in the research paper, Pep Guardiola's leadership and personal brand could describe him as an elegant leader with a philosophical personal brand, defending his total soccer style as a philosophy that permeates his brand and leadership.

#### **20.4.4 Primary Data-Based Research**

In *The Pekerman Solution*, Alamo (2015) exposes Stephen Covey's theory of four leadership roles (Covey 1991, 1992, 2013) in relation to the type of authority generated: modelling (serving as an example and inspiring confidence, as an essential moral authority), guiding (identifying opportunities where others perceive difficulties or nothing at all, as a moral visionary authority), aligning (setting order and integration, or even sometimes establishing structures, systems and processes, as an institutional moral authority) and empowering (sharing leadership and releasing the human potential present in others without resorting to external motivations, as a cultural moral authority). The author in his work conducted a survey in which the participants were asked about the leadership style of the three coaches studied, based on the three categories identified by Perez-Lopez (1996): transactional leadership (the relationship is based on economic influence, and therefore the collaborators interact with the leader only for extrinsic motivation), transcendent leadership (the relationship is based on economic, personal and professional influence, and therefore the collaborators interact with the leader by extrinsic, intrinsic and transcendent motivation) and transformative leadership (the relationship is based on economic and professional influence, and therefore the collaborators interact with the leader only by extrinsic and intrinsic motivation).

Finally, based on the Dominance-Inducement-Submission-Compliance methodology (hereinafter DISC) of behavioural styles exposed in Alamo (2015), experts were interviewed in order to describe the most characteristic elements of these three trainers considered in the present study, to identify their personal brand in order to clarify how they are perceived by public and audiences. The descriptors or labels associated with Vicente del Bosque were the following: paternalistic, serene, democratic, loyal, strategic and average results-oriented, identifying a transcendent leadership based on ethical values. For Jose Mourinho, the descriptors found were the following: determined, rigorous, charismatic, empathic, tactical and highly results-oriented, with a transactional leadership based on motivation. Finally, the descriptors associated with Pep Guardiola were aesthetic, conscientious, charismatic, transformer, strategic and remarkably results-oriented, with a transforming leadership based on a game idea.

Limitations of the leadership style of these three trainers and how they should improve in order to maximize their personal brand were also highlighted in this research. Following the DISC methodology, the experts highlighted the areas of improvement for these trainers. del Bosque has the following limitations: low results orientation by prioritizing values, slow decision making in situations that demand a quick response, low communicative and persuasive ability, low contingency response capability and loss of objectivity for the exaltation of a value. Then, his main improvement areas are a greater focus on results and communication. Mourinho's limitations are identified as poor manners in dealing with certain people, dictatorial style in decision making, low capacity to generate a positive and creative climate where talent can develop to its full potential, low flexibility in dealing with conflict situations and low objectivity in decisions. Thus, his main improvement areas are a greater objectivity and motivation in the medium and long term. Guardiola has the following limitations: low flexibility to adapt his game system, poor communication with certain players, low level of empathy with people who question him, low levels of transparency about what he really thinks and low levels of closeness with people who perceive him as distant and false. Therefore, his main improvement areas are a greater mental flexibility and naturalness in dealing with people.

## 20.5 Conclusions and Future Research

During their careers as coaches, Mourinho, Guardiola and del Bosque have achieved considerable successes. Few coaches have ever matched these achievements throughout history. In this sense, they are different, unique and, with a strong personal brand, highly appreciated and admired by millions of people and as a consequence icons for a part of society. These characteristics made them attractive characters for advertising. Mourinho luxury campaigns are famous; del Bosque is a reference for financial services and Guardiola for advertising in the automotive industry.

The research concludes that these three coaches are unrivalled in relation to their leadership and personal brand style: Jose Mourinho in a tactical dimension and the motivator of players, prioritizing the short-term results; Pep Guardiola in a strategic dimension and ongoing learning, emphasizing the importance of aesthetic soccer; and Vicente del Bosque in creating a team with a good environment and interpersonal skills, highlighting the unity and loyalty of the whole group above the short-term results. According to the results, Vicente del Bosque has a transcendent leadership style based on ethical values and he could be described as a humble leader with a chivalrous personal brand. Jose Mourinho has a transactional leadership style based on motivation and he could be identified as a paternal leader with a provocative personal brand. And Pep Guardiola has a transforming leadership style based on a game idea and he could be described as an elegant leader with a philosophical personal brand.

Limitations of the leadership style and personal branding of these three trainers were also highlighted in the present research: the main areas for improvement for

Vicente del Bosque are a greater focus on results and communication, for Jose Mourinho a greater objectivity and motivation in the medium and long term and for Pep Guardiola a greater mental flexibility and naturalness in dealing with people.

As future research, the authors of the present work will continue to explore the analysis and application of personal branding strategies and techniques to increase the performance and results of sport professionals, considering also broadening these studies to other scenarios such as business and entrepreneurship.

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