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Green and Lean Management

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Green and Lean Management

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Preface

The book titled "Green and Lean Management" covers the issues related to green and lean management in a context where organizations are facing, day after day, high challenges in what concerns the items related to the reuse, recycling, waste reduction, add value, low costs and time of production, sustainable behavior, among others, not only in an environmental perspective but also, and more and more frequently, in an organizational perspective. Today's organizations no longer can develop their practices based on the existent paradigms. On the contrary, it is necessary a completely break of these paradigms, walking to a total change of mentalities in the way how we manage the different organizational activities. Taking into account, this reality lean management appears as a management philosophy focused in productivity improvement in order to create value to the organization and their different stakeholders through waste reduction. Understood as a critical factor, this concept is able to be applied not only in the industry sector, but also in other different services, whatever we are in the private or public domain. At the same time, organizations are more and more concerned with the environment where they are established as well as with their social responsibility. This led them to the use of environmental and organizational friendly processes able to reach the necessary sustainability, which is seen as the strategy which allows them to keep the organization profits on high levels in the future. Once again, this way of thinking led us to another critical item like green management. Organizations that "think green" are organizations where change and innovation is a reality allowing them to gain more competitive advantages. Green management is important because not only the organization can see a relevant improvement in its team members' commitment as it is easier for them to attract and retain top talent. Parallel to the innovation stimulus, green management also contributes to reduce costs, to improve relationship with the different stakeholders—customers, suppliers, media, government—to reduce absenteeism and turnover as well as to promote greater productivity. Green and lean management is a new way of manage and think the organization, making them more strategic and competitive in the markets where they are present.

Conscious of this reality, this book looks to contribute to the exchange of experiences and perspectives about the state of the research related to green and lean management as well as the future direction of this field of research in ten chapters. The first chapter discusses "Green Supply Chain, Logistics, and Transportation." The second chapter contains information about "LP Impacts on the Neoliberal Political-Economic Context." The third chapter covers "Lean and Agile Supply Chain Management: A Case of IT Distribution Industry in the Middle East." In the fourth chapter, "Lean Thinking in Non-profit Organizations" is described. Subsequently, the fifth chapter covers "How to Learn Up from Lean Management in Health Services? HRM, Leadership and Relational Coordination." The sixth chapter contains information on "Examination of Service Quality Gaps: Evidence from State Bank of India." The seventh chapter describes "Application of Fuzzy QFD for Environmentally Conscious Design of Mobile Phones." The eighth chapter focuses on the "From New Public Management to New Public Services: Challenges for Hospital Governance and Lean and Hybrid Management." In the ninth chapter, "Educational Impact on Attitudinal Responses of Employees: Banking Industry Perspective" is discussed. Finally, in the tenth chapter, "Corporate Social Responsibility Role in SMEs: A Critical Way of Thinking in Green and Lean Management Arena" is presented.

Finally, it is important to say that this book is designed to increase the knowledge and effectiveness of all those that are interested in developing a management system that looks to meet the needs of a transforming organization in all kind of organizations and activity sectors.

The editors acknowledge their gratitude to Springer for this opportunity and for their professional support. Finally, we would like to thank to all chapter authors for their interest and availability to work on this project.

Braga, Portugal
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Carolina Machado received her Ph.D. degree in management sciences (organizational and politics management area/human resources management) from the University of Minho in 1999, and master′s degree in management (strategic human resource management) from Technical University of Lisbon in 1994. Teaching in the human resources management subjects since 1989 at University of Minho, she is since 2004 an associated professor, with experience and research interest areas in the field of human resource management, international human resource management, human resource management in small and medium enterprises, training and development, management change, and knowledge management. She is head of human resources management work group at University of Minho as well as chief editor of the International Journal of Applied Management Sciences and Engineering (IJAMSE).

J. Paulo Davim received his Ph.D. in mechanical engineering from the University of Porto in 1997, the aggregate title from the University of Coimbra in 2005, and a D.Sc. from London Metropolitan University in 2013. Currently, he is a professor at the Department of Mechanical Engineering of the University of Aveiro. He has about 30 years of teaching and research experience in manufacturing, materials and mechanical engineering with special emphasis in machining and tribology. Recently, he has also interest in management/industrial engineering and higher education for sustainability. He has worked as an evaluator of projects for international research agencies as well as an examiner of Ph.D. thesis for many universities. He is the editor in chief of eight international journals, guest editor of journals, books editor, book series editor, and scientific advisory for many international journals and conferences. Presently, he is an editorial board member of 30 international journals and acts as reviewer for more than 80 prestigious Web of Science journals. In addition, he has also published as author and co-author more

than 10 books, 60 book chapters, and 400 articles in journals and conferences (more 200 articles in journals indexed in Web of Science/h-index 35+ and SCOPUS/h-index 42+).

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Green Supply Chain, Logistics, and Transportation

Matthew J. Franchetti, Behin Elahi and Somik Ghose

Abstract This chapter presents the concepts of green supply chain network, green supply chain management, and green logistics. Increasing environmental concerns requires companies to become more responsive to products that either has been returned or that are at the end of their useful lives. Organization's responsiveness and their reactions toward life cycles of products are critical to achieve sustained success once fluctuations are recurrent and the business environments are turbulent. Life cycles are getting shorter, and effective managing can save large amounts of cash as many materials can be extracted, reused, and redistributed. Alongside this context, this chapter focuses on a general overview toward closed-loop supply chains and offers a generalized optimization model. In addition, incentive approaches for an optimal recovery plan in a closed-loop supply chain are discussed in this chapter.

1 Green Supply Chain Network, Green Supply Chain Management, and Green Logistics Concepts

1.1 Green Supply Chain Network

The green supply chain network concept has been coming into sight since 2010. Adjoining the "green" concept to the "supply chain" concept creates a novel paradigm where the supply chain will have a direct relation to the environment. This is noteworthy since historically, these two paradigms have been in conflict with each other. Green supply chain network is defined as the assimilation of environmental thinking and the management of the supply chain, containing product design, procurement, material selection, and product delivery to the end customer as well as controlling the life cycle of the product's afterlife.

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A comprehensive network analysis literature review on Green Supply Chain Networks was presented by Fahimnia et al. (2015). Based on their findings, the geographic dispersion of the research works did signify that Europe, though with few highly influential publications, seemed to have the greatest number of works, with North America not far behind. The diffusion of the work into Asia is also starting to take place. They observed, utilizing an objective clustering approach, that conceptual and empirical studies have set the foundation and represent the most leading works. Their topical literature classification also demonstrated that prescriptive and quantitative modeling has begun to take on greater significance.

1.2 Green Supply Chain Management

Green supply chain management is defined as the coordination of the supply chain in a form that integrates environmental concerns and considers inter-organizational activities. Green supply chain management focuses on the acquisition, production, and distribution of materials to meet the requirements of stakeholders to enhance profitability, competitiveness, and the resilience of the suppliers, manufacturing systems, distribution centers, and retailers in the short and medium terms through improved green performance (Ahi and Searcy 2013; Elahi and Franchetti 2013).

Benefits of green supply chain initiatives include the ability to cost-effectively plan distribution routes with suppliers and customers; maximize capacity and move full containers; consolidate multiple customer orders and eliminate expedited and extra shipping costs for on-time delivery while honoring customer delivery dates (Elahi et al. 2011; Akhavan et al. 2014). All of these components come together to increase a company's competitive edge while lessening the impact the logistics processes have on the environment. Green supply chain management has received great interest from practitioners and scholars in recent years due to pressure from various stakeholders, including consumers, community activists, nongovernmental organization (NGOs), governmental legislation, and global competition. The need to sustain supply chains has resulted in many companies selecting a certain level of commitment in their sustainability practices (Seyedhosseini et al. 2011). Academia and various industries of the global economy have implemented sustainability initiatives such as energy efficient technologies, the use of renewable sources, recycling, green procurement, reduced packaging, carbon emission accounting, social responsibilities, and employee recognition to ensure sustainability and environmental aspects in supply chain planning and supply chain management. In a green supply chain network, environmental and social criteria require to be fulfilled by the members to remain within the supply chain, whereas it is expected that competitiveness would be maintained through meeting customer's needs and associated economic criteria.

1.3 Green Logistics

Sustainability and green supply chain initiatives are rapidly becoming high priorities at many companies and enterprises as they strive for decreasing supply chain costs while reducing their carbon footprint and becoming better stewards of the planet's natural resources (Badkoobehi et al. 2011). Over 75 % of a company's carbon footprint is related to transportation and logistics activities. An effective transportation management system can help the green supply chain initiatives while cutting freight expense by 5–40 % (Ahi and Searcy 2013; Sarkis 2006).

Logistics are at the heart of the operation of modern transport systems and refers to supply chain management practices and strategies that reduce the environmental and energy footprint of freight distribution. It focuses on material handling, waste management, packaging and transport. Green logistics can cover several dimensions related to production planning, materials management and physical distribution opening the door to a wide array of potential applications of environmentally friendly strategies along supply chains. This implies that different stakeholders could be applying different strategies, all of which being labeled as green logistics. One corporation could be focusing on product packaging while another on alternative fuel vehicles; both are undertaking green logistics.

Though, a closer look at the concept and its applications, a great many paradoxes and inconsistencies arise, which suggest that its application may be harder than what might have been supposed in the first place. While there has been much debate about what green logistics truly entails, the transportation industry has developed very narrow and specific interests about the issue. If transportation costs are reduced and assets such as vehicles, terminals and distribution centers better utilized, the assumption is that green logistics strategies are being implemented. Well-publicized issues such as sustainability, energy, waste disposal and climate change in addition to some factors such as truck size, emissions, and noise levels have contributed to establish green logistics as a formal field of enquiry and mitigation since 2005. Green supply chain management practices that are being implemented in distribution activities include energy efficiency; reduction of greenhouse gas (GHG) emissions; water conservation or processing; waste reduction; reduced packaging/increased use of biodegradable packaging; product and packaging recycling/re-use; and green procurement practices. Environmental concepts, such as material flows or the carbon cycle, have also become readily applicable to supply chain management.

Whereas traditional logistics pursues to organize forward distribution, that is the transport, warehousing, packaging and inventory control from the producer to the consumer, environmental considerations opened up markets for recycling and disposal, and led to an entire new sub-sector; reverse logistics. This reverse distribution involves the transport of waste and the movement of used materials. Even though the term reverse logistics is widely used, other names have been employed, such as reverse distribution and reverse-flow logistics. Inserting logistics into recycling and the disposal of waste materials of all kinds, including toxic and

hazardous goods, has become a major new market but is does not reflect the full extent of green logistic which is the greening of both the forward and reverse segments of supply chains (Rodrigue et al. 2013).

An overview of the standard attributes of logistical systems discloses several inconsistencies with regards to the mitigation of environmental externalities as follows (Rodrigue et al. 2013; Elahi et al. 2011):

- Costs: The aim of logistics is to reduce costs, notably transport costs. Whereas the former remain the most significant logistics cost, inventory carrying costs come second. Besides, economies of time and improvements in service reliability, including flexibility, are further objectives. Corporations involved in the physical distribution of freight are highly supportive of strategies that enable them to cut transport costs in a competitive setting. Economies of scale in transportation in addition to higher load densities are common cost-saving strategies that concurrently lead to environmental benefits in terms of lower fuel consumption per ton-mile. In some cases, the cost-saving strategies followed by logistic operators can be at variance with environmental considerations that become externalized. This means that the advantages of logistics are realized by the users and ultimately to the consumer if the benefits are shared along the supply chain. Yet, the environment assumes a wide variety of burdens and costs, which form a hierarchy ranging from costs internal to the supply chain to externalized costs. Society is becoming less willing to accept these costs, and pressure is increasingly being put on governments and corporations to include greater environmental considerations in their activities.
- Time: In logistics, time is frequently the essence. By reducing the time of flows, the velocity of the distribution system is enhanced, and consequently, its efficiency. This is mainly accomplished by using the most polluting and least energy efficient transportation modes. The major increase of air freight and trucking is partially the result of time constraints imposed by logistical activities. The time constraints are themselves the consequence of an increasing flexibility of industrial production systems and of the retailing sector. Logistics offers door-to-door (DTD) services, mostly coupled with just-in-time (JIT) strategies. Other modes cannot satisfy the requirements such a situation creates as effectively. This leads to a vicious circle; the more DTD and JIT strategies are used, the further the negative environmental effects of the traffic it creates. The slow steaming strategy pursued by maritime shipping companies is further challenging time management within long distance supply chains.
- Reliability: At the heart of logistics is the overriding importance of service reliability. Its success is built upon the ability to deliver freight on time with the least breakage or damage. Logistics providers often realize these objectives by applying the modes that are perceived as being most reliable. Lower reliability levels are coupled with lower levels of asset utilization and higher inventory levels, which is wasteful and indirectly detrimental to the environment.
- Warehousing: Logistics is a key element promoting globalization and international flows of commerce. Modern logistics systems economies are based on the

reduction of inventories, as the speed and reliability of deliveries eliminates the need to store and stockpile. Consequently, a reduction in warehousing demands is one of the advantages of logistics. This means nevertheless, that inventories have been transferred to a certain degree to the transport system, particularly to roads but also to terminals. Inventories are actually in transit, contributing still further to congestion and pollution. The environment and society, not the logistical operators, are assuming the external costs. Not all sectors exhibit this trend, however. In some industrial sectors, computers for example, there is a growing trend for vertical disintegration of the manufacturing process, in which extra links are added to the supply chain. Intermediate plants where some assembly is undertaken have been added between the manufacturer and consumer. While facilitating the customizing of the product for the consumer, it adds an additional external movement of products in the production line.

- Information Technologies: Information technologies have resulted in new dimensions in retailing. One of the most dynamic markets is e-commerce. This is made possible by an integrated supply chain with data interchange between suppliers, assembly lines and freight forwarders. Even if for the online customers there is an appearance of a movement-free transaction, the distribution online transactions create may consume more energy than other retail activities. The distribution activities that have benefited the most from e-commerce are parcel-shipping companies such as UPS, Federal Express or DHL rely solely on trucking and air transportation. Information technologies related to e-commerce applied to logistics can obviously have positive impacts. Therefore once again, the situation may be seen as paradoxical.

It can be claimed that the paradoxes of green logistics make it challenging for the logistics industry to become notably greener. The internal inconsistencies between the goal of environmental sustainability and an industry that gives undue preference to road and air transport can be seen as being incompatible. Yet internal and external pressures promoting a more environmentally-friendly logistics industry seem to be unavoidable. How the logistics industry has responded to the environmental imperatives is not unpredicted, given its commercial and economic imperatives, mainly in view of the paradoxes it is facing.

2 Closed-Loop Supply Chain

A closed loop supply chain is defined as a system to maximize value creation over the entire life cycle of a product with dynamic recovery of value from different kinds and volumes of returns over time (Guide and Van Wassenhove 2009; Golroudbary and Zahraee 2015). Based on the literature review, and recently owing to growing attention given to the implementation of sustainability in manufacturing systems in terms of reduction in the primary resource consumption, pollution prevention, waste management, social responsibility, and the customer pressures,

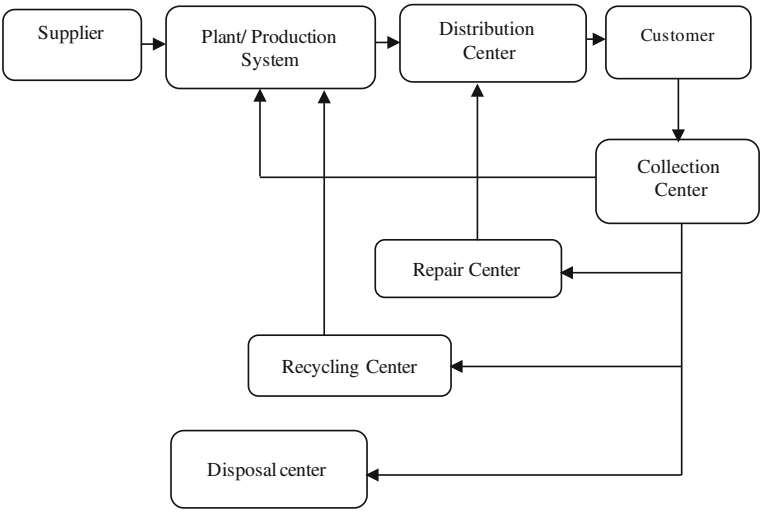

Fig. 1 Simple structure of a proposed Closed-Loop Supply Chain Network

reverse logistics in supply chain management has gained lots of consideration (Elahi et al. 2011). Since planning and designing the forward and reverse logistics separately results in suboptimal designs with regard to the objectives integrated with the supply chain, the closed-loop supply chain network designing and planning are analytically essential. Closed-loop supply chain can assure the least waste of materials through the whole supply chain during the life cycle of the materials (Ramezani et al. 2014; Elahi and Franchetti 2014; Gallego and Cueto 2009). A simple structure of a proposed closed-loop supply chain network is demonstrated in Fig. 1. In the forward stream, the suppliers provide the raw material to manufacturing facilities. The products are transported from plants to customers via distribution centers to fulfill the customers' demands. In the backward stream, the returned products from customers are shipped to collection centers for testing and inspection.

After examining the products in collection centers, the reusable parts of the products are transported to the sites, the repairable products are shipped to the repair centers, and the recyclable products and wastes are sent to recycling centers and disposable products are dispatched to the disposal centers. In this way, redundant transportation of the returned products is reduced and the returned products are directly transferred to the relevant facilities. After fixing the products in repair centers and remanufacturing in the plants, the returned products are transported to distribution centers. When the repair and remanufacturing activities are made, the products are of as-good-as-new quality; hence, they can be used in various related industries. The proposed model can take the following assumptions and constraints into account:

- The model can be single-product or multi-product.
- The model can be single-period or multi-period (Here, period refers to a given specific time or a timing cycle that is needed to perform all of system's processes containing production, recycling, and repairing of products, controlling the inventory, and meeting all/some parts of customers' demands.)
- The locations of suppliers, customer zones, and disposal centers can be known and fixed. It is also possible to have various alternatives for disposal centers' locations and attempt to select the best location based on initial investments, closeness to the markets and recycling centers, and so forth.
- The potential locations of plants, distribution centers, collection centers, and repair centers are known.
- The capacities of facilities are limited.
- The quantities of all parameters can be deterministic or probabilistic.
- The return rate for each customer can depend on the customer demand.
- The objective can be defined as determining the facility locations and flows between facilities along with financial decisions.

A comprehensive conceptual model for a closed-loop supply chain is illustrated in Fig. 2 (Elahi and Franchetti 2014).

In this conceptual model, product life cycle and three types of returns are taken into consideration as well. Once products are applied by final customers, some of them are returned back. The returning products are delivered to the collection site. Commercial returns are fixed at the repair site. These products can be utilized as new ones. End-of-use and end-of-life returns are disassembled. In this stage, the

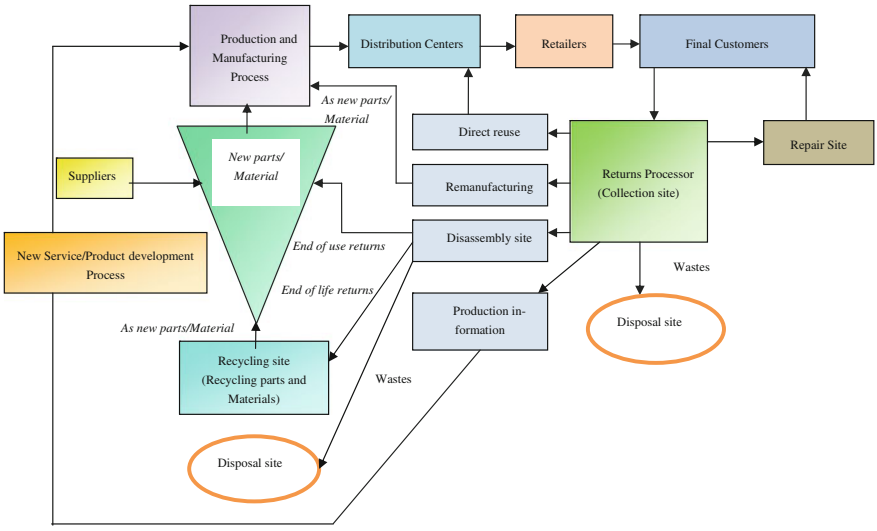

Fig. 2 Comprehensive proposed conceptual model for a Closed-Loop Supply Chain *Source* Elahi, B., and Franchetti, M., "A New Optimization Model for Closed-Loop Supply Chain Networks," 2014

wastes are separated. End-of-life returns are recycled at recycling sites. The parts are added to the part inventory as new parts. It should be considered that the capacities of manufacturing, repairing, disassembling, and recycling sites/centers can be limited. Based on the number of returning parts, the manufacturer purchases new parts from external suppliers. There are some suppliers who can supply required parts. The capacities of suppliers can be known. Some of the returned parts are not usable and should be disposed of. The commercial returns can supply a portion of market demand.

2.1 Proposing an Optimization Model for a Generalized Closed-Loop Supply Chain Network

In this section, a simple general closed loop supply chain network is considered in order to propose a general applicable mathematical model related to that. As Fig. 3 shows the network includes manufacturers (Production plants), Returns Processors (Collection sites), and demand markets. The production plants can manufacture new products and remanufacture returned products. The products are sent to demand markets by production plants. Then, the returned products are sent to Returns Processor (Collection sites). Locations of demand markets are fixed. Locations and capacities of plants and Returns Processor are known in advance. Other Assumptions are as follows:

- Returns Processors collect used products from demand markets. They determine the condition of the returns by inspection and/or separation to find out whether they are recoverable or not. They send recoverable returns to the production plants and unrecoverable returns (because of economic and/or technological reasons) to the disposal center. The Mathematical model is considered in multi-period situation.

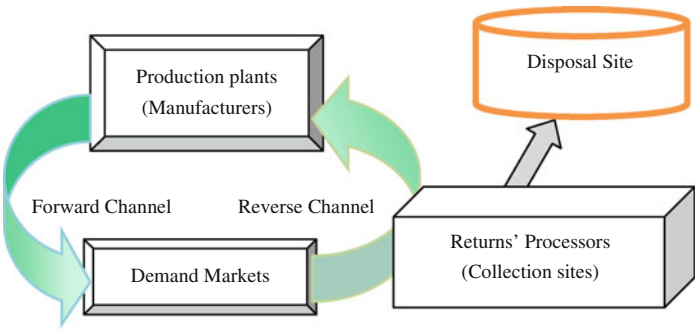

Fig. 3 The schema of considered closed-loop supply chain

- The objective is to know how many and which production plants and Return Processors should be open, and which products and in which quantities should be stocked in them.
- All of the returned products from demand markets (100 %) are collected in Returns Processor (Collection site)

Now the list of indices, parameters and decision variables are introduced for problem formulation.

Index	
U	Different kinds of products
I	Potential production plant locations
J	Demand market locations
K	Potential returns processors (Collection sites)
T	Periods
Parameters	
U	Number of different kinds of products
I	Number of potential production plant locations
J	Number of demand market locations
K	Number of potential returns processors (Collection sites)
T	Number of periods
$C_{u,t}$	Unit production cost of uth product in tth period
$A_{u,t}$	Unit transportation cost of uth product per mile carrying from demand market to returns processors (Collection sites) in tth period
$T_{u,t}$	Unit transportation cost of uth product per mile carrying from production plant to the demand market in tth period
$\theta_{u,t}$	Unit transportation cost of uth product per mile carrying from returns processors (Collection sites) to the production plant in tth period
$B_{u,t}$	Unit transportation cost of uth product per mile carrying from returns' processors (Collection sites) to disposal site in tth period
$O_{i,t}$	Fixed cost of opening the ith production plant in tth period
$P_{k,t}$	Fixed cost of opening the kth returns' processor (Collection site) in tth period
$S_{u,t}$	Cost saving of the uth product (owing to product recovery) in tth period
$F_{u,t}$	Disposal cost of the uth product in tth period
$G_{i,u,t}$	Capacity of the ith production plant for uth product in tth period
$H_{k,u,t}$	Capacity of the kth returns processor (Collection site) for uth product in tth period
$L_{i,j}$	The distance between ith production plant location and jth demand market location based on Euclidean method
$L_{j,k}$	The distance between jth demand market location and kth returns processor (Collection site) location based on Euclidean method
$L_{k,i}$	The distance between kth returns' processor (Collection site) location and ith production plant location based on Euclidean method
L_{k}	The distance between kth returns processor (Collection site) location and disposal site location based on Euclidean method

(continued)

(continued)

$D_{j,u,t}$	Demand of jth customer (jth demand market) for uth product in tth period	
$R_{j,u,t}$	Return of jth customer (jth demand market) for uth product in tth period	
$M_{u,t}$	Minimum disposal faction of uth product in tth period	
$hp_{u,i}$	Unit inventory holding cost of uth product at ith production plant' site per unit time	
$IP_{u,i,t}$	The amount of inventory related to uth product at ith production plant' site in the end of tth period	
Decision variables		
$X_{u,i,j,t}$	The amount of produced units which is related to the uth product at ith production plant for jth demand market in tth period	
$V_{u,j,k,t}$	The amount of uth product returned from jth demand market to kth returns' processor (Collection site) in tth period	
$N_{u,k,i,t}$	The amount of units which is related to the uth product dispatched from kth returns' processor (Collection site) to ith production plant in tth period	
$Q_{u,k,t}$	The amount of units which is related to the uth product dispatched from kth returns' processor (Collection site) to the disposal site in tth period	
$Y_{i,t}$	1	If a production plant is located and set up at potential ith site in tth period
	0	If not
$W_{k,t}$	1	If a returns processor (Collection site) is located and set up at kth potential site in tth period
	0	If not

Considering the aforementioned assumptions and notations, the problem can be modeled as follows:

Objective Function:

$$\textit{Minimizing Total Costs} = U_1 + U_2 + \cdots + U_7$$

$$U_1 = \sum_{t=1}^{T} \sum_{i=1}^{I} O_{i,t} \cdot Y_{i,t} \tag{1}$$

$$U_2 = \sum_{t=1}^{T} \sum_{k=1}^{K} P_{k,t} \cdot W_{k,t} \tag{2}$$

$$U_3 = \sum_{t=1}^{T} \sum_{u=1}^{U} \sum_{i=1}^{I} \sum_{j=1}^{J} \left(C_{u,t} + T_{u,t} \cdot L_{i,j}\right) \cdot X_{u,i,j,t} \tag{3}$$

$$U_4 = \sum_{t=1}^{T} \sum_{u=1}^{U} \sum_{j=1}^{J} \sum_{k=1}^{K} \left(A_{u,t} \cdot L_{j,k} \cdot V_{u,j,k,t}\right) \tag{4}$$

$$U_5 = \sum_{t=1}^{T} \sum_{u=1}^{U} \sum_{k=1}^{K} \sum_{i=1}^{I} \left(-S_{u,t} + \theta_{u,t} \cdot L_{k,i}\right) \cdot N_{u,k,i,t} \tag{5}$$

$$U_6 = \sum_{t=1}^{T}\sum_{u=1}^{U}\sum_{k=1}^{K}\left(F_{u,t} + B_{u,t}\cdot L_k\right)\cdot Q_{u,k,t} \tag{6}$$

$$U_7 = \sum_{t=1}^{T}\sum_{i=1}^{I}\sum_{u=1}^{U}\left(hp_{u,i}\cdot IP_{u,i,t}\right) \tag{7}$$

Subject to:

$$\sum_{k=1}^{K} V_{u,j,k,t} \le \sum_{i=1}^{I} X_{u,i,j,t} + \sum_{i=1}^{I} IP_{u,i,t-1} \quad \forall\, u,j,t \tag{8}$$

$$\left(\sum_{u=1}^{U}\sum_{k=1}^{K} N_{u,k,i,t} + \sum_{u=1}^{U}\sum_{j=1}^{J} X_{u,i,j,t} + \sum_{u=1}^{U}\sum_{i=1}^{I} IP_{u,i,t-1}\right) \le \left(Y_{i,t}\cdot \sum_{u=1}^{U} G_{i,u,t}\right) \quad \forall\, i,t \tag{9}$$

$$\sum_{i=1}^{I} IP_{u,i,t-1} + \sum_{i=1}^{I} X_{u,i,j,t} = D_{j,u,t} + \sum_{i=1}^{I} IP_{u,i,t} \quad \forall\, j,u,t \tag{10}$$

$$M_{u,t}\cdot \sum_{j=1}^{J} V_{u,j,k,t} \le Q_{u,k,t} \quad \forall\, u,k,t \tag{11}$$

$$\sum_{u=1}^{U}\sum_{j=1}^{J} V_{u,j,k,t} \le W_{k,t}\cdot \sum_{u=1}^{U} H_{k,u,t} \quad \forall\, k,t \tag{12}$$

$$\sum_{j=1}^{J} V_{u,j,k,t} = \sum_{i=1}^{I} N_{u,k,i,t} + Q_{u,k,t} \quad \forall\, u,k,t \tag{13}$$

$$\sum_{k=1}^{K} V_{u,j,k,t} = R_{j,u.t} \quad \forall\, u,k,t \tag{14}$$

$$X_{u,i,j,t}, V_{u,j,k,t}, N_{u,k,i,t}, Q_{u,k,t} \in Z^{+} \cup \{0\} \quad \forall\, i,j,u,k,t \tag{15}$$

$$Y_{i,t}, W_{k,t} \in \{0,1\} \quad \forall\, i,k,t \tag{16}$$

Here, the objective function is minimization of the total cost. The first and second parts show the fixed costs of opening production plants and returns processors (Collection sites), respectively (Eqs. 1, 2). The third part represents the production and transportation costs of new products (Eq. 3). The fourth part is related to product recovery and transportation costs of returned products (Eq. 4).

Additionally, the fifth part represents the total recovery and transportation costs of returning products from returns processors (Collection sites) to plants (Eq. 5). The sixth part calculates disposal and transportation costs (Eq. 6). Equation 7 is related to the cost of holding inventory in the production plant's site. Constraint (8) signifies that forward flow is greater than reverse flow. Constraint (9) is a capacity constraint of production plants. The constraint (10) guarantees that the sum of the total number of each manufactured product for each demand market and amount of inventory in the production plant's site which is related to the prior period is equal to the sum of demand and the amount of inventory in production plant's site in the current period. Constraint (11) considers a minimum disposal fraction for each product. Constraint (12) is a capacity constraint of returns processors (Collection sites). Constraint (13) indicates that the quantity of returned products from demand market is equal to the quantity of returned products to plants and quantity of products in disposal center for each collection center and each product. Constraint (14) reveals the returned products. Constraint (15) preserves the non-negativity restriction on the decision variables and constraint (16) ensures the binary nature of decision variables. The CPLEX Optimization Studio or GAMS (General Algebraic Modelling Systems) solvers can be applied to solve this mixed integer programming model for a specific data set.

2.2 *Incentive Approaches for an Optimal Recovery Plan in a Closed-Loop Supply Chain*

Changing the level of incentives offered allows the company and the related supply chain network to affect the quantity and quality of product returns received from activities. Offering higher incentives would increase expected product returns, which leads to less usage of new raw materials due to cannibalizing, less need for manufacturing new products due to remanufacturing, and boosted probability of meeting product return requirements. Also, higher incentives increase the quantity of high-quality product returns received. On the other hand, offering lower incentives would lower costs of acquiring product returns. This would also mean less product returns are expected, and therefore, less capacity is required for recovery options and less costs of logistics involved in product returns. Three possible activities which stimulate product returns include discount offers, cash rebate, and voluntary product return.

In a closed-loop supply chain, the returned products can undergo various recovery options such as cannibalizing, refurbishment, remanufacturing, or controlled disposal depending on their quality. A sample diagram for defining the relationship between product return quality and possible recovery options is illustrated in Fig. 4. Based on this figure, it is assumed that product returns received from consumers each period can be assigned a quality level between Q_{Low} and Q_{high} which can follow a probability function depending on the activity taken and the

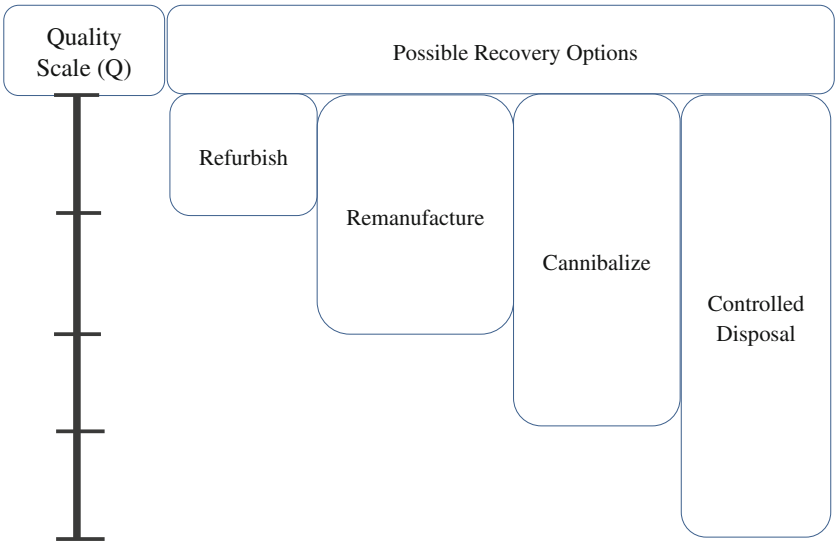

Fig. 4 The defined relationship between quality of returned products and recovery options

incentive level offered. Refurbish Product returns with quality level of at least $Q_{Refurbish}$. A refurbishing cost can be considered for each product return that undergoes this process. Refurbished products can be assumed to have lower quality than newly manufactured products and remanufactured products. Considering that, refurbished products can only be sold to secondary consumers at a lower price than newly manufactured or remanufactured products.

Remanufacture Product returns with quality at least $Q_{Remanufacture}$ can be remanufactured. A remanufacture cost, which is less than the manufacture cost of new products, can be taken into consideration. The result of this process is a product as good as newly manufactured products. Remanufactured products can be sold to primary consumers at the same price as newly manufactured products. Cannibalize Product returns with quality of at least $Q_{Cannibalize}$ can be cannibalized. Cannibalized product returns are disassembled in order to obtain the raw materials and components from these to be utilized in the production of new products and the remanufacture and refurbishing of product returns. Costs for cannibalizing product returns may comprise those for the disassembly and extraction of materials and any further processing these materials may require before they are applied in production of products. Furthermore, a raw material consumption target can be determined in order to assign a specific ratio for cannibalized raw materials and virgin raw materials to be applied in the manufacturing of new and remanufactured products. Controlled disposal product returns with quality that does not meet requirements for other recovery options go through controlled disposal. These product returns are considered to be disposed in a controlled manner, contrary to products that did not return which are outside the control of the firm. A disposal cost is taken into

account in order to ensure that these wastes are disposed safely and lawfully (Chung et al. 2008).

Improving the performance of a closed-loop supply chain in terms of what it can achieve when the different agents act selfishly, has been the topic of a significant literature during the last two decades or so. In a recent survey of closed-loop supply chain literature, Souza (2013) classifies the research into four topics, specifically: (a) types of incentives; (b) time-dependency of returns; (c) waste versus active return policy; and (d) firms' motivations to close the loop. The use of incentive strategies makes it possible to embed the coordinated solution, that is, the jointly optimal payoff, with an equilibrium property. This means that each player will find it individually rational to implement over time his/her part of the cooperative solution rather than deviating to an uncooperative strategy (De Giovanni et al. 2016). Two examples of motivations for the supply chain to close the loop are: (a) cost savings, as producing with used materials or parts extracted from returned products is cheaper than manufacturing with new materials; and (b) demand expansion, as consumers who return their used products are likely to replace them with new ones. There are empirically observed situations in which consumers who return/recycle products also buy new ones. Such a marketing aspect of recycling and remanufacturing can be taken into account.

As an example consider a closed-loop supply chain including a manufacturer and a retailer. Both members of the closed-loop supply chain can invest in a product recovery plan that endeavors to increase returns by consumers. The rationale behind involving both players in a product recovery plan is that returned used products affect not only (re)manufacturing cost, but also demand and consequently both players' revenues (De Giovanni et al. 2016).

Once the major aim of product recovery is reducing production costs, then the advantages go to the manufacturer, and the retailer has no direct incentive to contribute to a product recovery plan. Of course, one can claim that if the production cost is lower, then this will be reflected in a lower whole sale price, resulting in the retailer also benefiting from product recovery. Even so, when returns boost demand in the retailer's outlet, then it becomes lucid to that player that it is in his/her best interest to participate in a product recovery plan to increase the return rate.

Here, even though we assume that both members of the closed-loop supply chain are interested in the product recovery plan; this does not imply that the manufacturer and the retailer will choose the optimal investment levels that would maximize the total chain profits. To increase the players' contributions in a decentralized supply chain, one needs to implement some incentive schemes. Related to this context, the literature has concentrated on per-return incentives, that is, the collector (manufacturer, retailer or third party) receives a per-return amount, which is often an exogenous parameter.

The given closed-loop supply chain can be considered as a two-player dynamic game. Applying the incentive strategies can lead to the realization of the joint optimal solution. The manufacturer decides the wholesale price and the retailer chooses the price to consumers. Both of them are dynamically participated in a

product recovery plan with the objective of encouraging consumers to return beforehand purchased products. As the cooperative solution is not (in general) an equilibrium, it makes sense to argue that each player would like to be assured that if he/she implements his/her part of this solution, his/her partner will also do the same. One way of realizing the desired cooperative outcome is to apply the concept of incentive equilibrium. The incentive equilibrium originates in Stackelberg games, where the leader creates an incentive for the follower in a way that is desirable to the leader. The incentive equilibrium may be seen as a two-sided Stackelberg incentive problem: when one player implements her incentive strategy, the other player can do no better than to act in accordance with the agreement (De Giovanni et al. 2016).

Other kinds of incentive schemes have also been developed that rely on other features, such as the product acquisition price through (a) the buy-back mechanism/contact (Hammond and Beullens 2007; Kogan and Tapiero 2007): with a buy back contract the manufacturer (plays the role of a supplier) charges the retailer for the purchased products/units (w per unit purchased), but pays the retailer for remaining products/units (b per unit remaining) at the end of the season. A retailer should not profit from left over inventory, so assume $b \leq w$. An important implicit assumption in a buy-back contract is that the manufacturer (plays the role of a supplier) is able to verify the number of remaining units and the cost of such monitoring does not nullify the benefits created by the contract, and (b) the players' efforts and the performance of closed-loop supply chain (De Giovanni 2015).

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LP Impacts on the Neoliberal Political-Economic Context

Maria João Santos

Abstract Lean production has repeatedly been associated with the development of skills, increasing employee participation levels and enhancing the quality of working lives. However, diverse studies also come out against this perspective and instead identify certain limitations to this approach. This article reflects on both the implications lean production holds for the quality of life of workers and its impact within the context of neoliberalism. Opting in favour of a critical view, we present the innovative principles to lean management, segmented into three major topics: production management techniques, supplier networks and human resource management. Subsequently, we make a critical overview of the lean production implications for organising work and the workplace contexts faced by employees. Complementarily, this article also spans the terms under which the neoliberal political-economic system emerged. We conclude that lean production in itself is not the cause of negative impacts but depending on the management style and the way such practices get implemented. This neoliberal contextual framework underpins the focus on the most contested facets of lean production and how this effectively reflects in an intensification of work, boosting control levels, fragmenting and atomising labour and, on the grounds of worker flexibility, ensuring their availability to work in a variety of situations, on low salaries, with limited expectations in terms of workplace security and working conditions, lower levels of collective worker resistance and highly vulnerable to deteriorations in their standards of living.

1 Introduction

After almost three decades, the management system designated lean production (LP) has expanded far beyond the automobile and manufacturing sectors where it originated to become generalised across the most diverse sectors of activity and

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geographies. Its principles have undergone application in areas as distinct as the aerospace industry (Martínez-Jurado and Moyano-Fuentes 2014), civil construction (Jørgensen and Emmitt 2008; Green 2002) and services (Sprigg and Jackson 2006; Arfmann and Barbe 2014) whether services for healthcare (Eriksson et al. 2016), education (Sirvanci 2004; Sahney et al. 2004; Thirkell and Ashman 2014), or governance, for example (Radnor and Johnston 2013). Concerns over boosting efficiency, reducing costs, and guaranteeing quality standards all encouraged the adoption of lean management principles.

There is no clear and consensual perception as regards the scope of the spread of LP in the West. However, various studies do point to a broad scale of dissemination (Holweg 2007). A study on the working conditions prevailing in 31 different European countries (Parent-Thirion et al. 2007) reports that around a quarter (25.7 %) of responding employees worked under some form of LP model. These include high performance working practices involving team working, task rotation, problem solving, quality control, autonomy in the workplace but also subject to strong restrictions such as compliance with high production standards, intense rates of works, strict quality norms and a significant presence of monotonous and repetitive tasks (Kovács et al. 2014). LP associated working practices were the most visible in countries such as the United Kingdom (32.4 %), Portugal (30.3 %), Ireland (29.2 %), Greece (29 %) alongside some countries in Eastern Europe. These are also present in industry, especially in the production of means of transport, electronic and electric devices, wood and paper pulping and in the design and publishing industry.

Contrary to traditional mass production, LP implies less of everything (Adler 1993; Womack et al. 1990; Wood 1993). The management approach seeks to eliminate waste, reduce the duplication of work, cut stock levels, achieve fewer hours per output and lower the number of workers deemed of lesser added value. LP, whilst based upon the Taylorist/Fordist model that it emerged from, has taken on distinctive characteristics given the need to adapt to the economic reality of Japan in the post-war period and the new operational objectives. The differences in approach fundamentally span three different areas of action. Firstly, LP involves the design of specific production management techniques, introducing new forms of organising production based on external networks of suppliers and differentiated at the level of organising work in placing a particular emphasis on continuous improvement processes and the role attributed to team working.

However, the organisation of work and labour relations incorporate the main criticisms of LP as a management model (Berggren 1993; Rinehart et al. 1997; Post and Slaughter 1999). The increasing intensification of working patterns, the subordination of work to the optimisation of processes, the fragmentation and atomisation of labour and the secondary role attributed to labour relations feature as some of the most contested fields. Despite the dissonant voices, many of the principles to LP have become integral components of the currently predominant management models.

There are thus many workers engaged with the principles behind LP within their working contexts. Within this scope, some questions inevitably arise. What

restrictions stem from LP practices? What physical and psychological consequences do they have for workers? Does greater involvement reflect in greater worker autonomy and the enrichment of the working tasks? How does this approach differentiate from the traditional models as regards the supervision and control of work? What human resource flexibility strategies get prioritised? What implications are there for the employment market? What is the underlying system of labour relations? Finally, just what circumstances foster the spread of LP practices and how do they fit in contemporarily with the current neoliberal political-economic context?

Based upon a non-exhaustive review of the vast literature existing on LP, this article seeks to reflect on the innovative factors introduced by LP and the socio-organisational implications resulting. Opting in favour of a critical perspective, this approaches the impacts generated for working contexts, labour and employment as well as analysing the conditions surrounding its emergence within the framework of a neoliberal economy. More specifically, this articles divides into three sections. We begin with a characterisation of the main innovations inherent to lean management, themselves segmented into three main topics: management production techniques, supplier networks and human resource management. Then, we engage in critical analysis of the implications of LP for the organisation of work and the quality of life of workers. Furthermore, and complementarily, the article reflects on the macro-economic context in which LP has emerged.

2 Lean Production: Characteristic Features

2.1 From Taylorism/Fordism to Lean Production

Despite LP taking its inspiration from the Taylorist-Fordist model of production (with that system transplanted from the Ford factory to the Toyota Jidosha automobile factory), the former displays fairly distinctive characteristics. The economic constraints prevailing in post-war Japan made certain changes necessary to the original model of production (Hiroyuki 1998). Economic resources remained highly scarce, with restrictions on the capacities of installations and companies facing not only serious financial difficulties but also irregularities in supplies and only a limited domestic market. All of these factors served to impose strong restrictions on mass production. Thus, in order to deal with such constraints, there came the need to introduce significant alterations to the Taylorist/Fordist model to shape it to the realities then existing alongside the need to attain new operational objectives (Skorstad 1994; Freire 1995).

These factors emerged in conjunction with the affirmation of new assumptions (Wood 1993) including how it might be possible to produce standardised products without raising the installed capacity or the level of intermediate stocks. This interlinked with the conception of how improvements to quality might be returned

without significantly boosting the costs of production and led to the introduction of new management principles that would call into question many of the characteristics of the original model of production (from Fordism/Taylorism).

Hence, and contrary to the traditional Taylorist/Fordist logic, shorter but still profitable production runs became possible (replacing vertical integration by the setting up of networks of subcontracting); guaranteeing quality without supplementary costs (through the introduction of the principles behind total quality management and rendering the layout more flexible) and cutting costs (through means of eliminating waste).

Stemming from this process of adaptation, some of the lean management principles ran contrary to the core tenets of the Taylorist/Fordist production model (Coriat 1991; Forza 1996). Such proves the case with economies of scale, vertical integration, the concentration of production and the undervaluation of quality in favour of quantity. In general terms, while the Taylorist/Fordist model strove for productive efficiency through both rationalising recourse to labour and incorporating technology, LP obtains its goals above all through the optimisation of production, the reduction in costs and the demand for total quality.

Should we concentrate specifically on the most significant innovations that LP brought along, we may identify three different axes that we present below: the optimisation of production, the implementation of new ways of organising production through drawing upon networks of suppliers and in addition to the differentiated management of human resources.

2.2 Production Management Techniques

Within this scope, the changes in the production management techniques rank as among the most significant changes introduced. One of the emblematic causes introduced by LP came with total quality management (TQM). This encapsulates the expansion of quality control to all products and the entire cycle of production and moving on from some process of randomly inspecting outputs as was the practice under the Fordist model.

Another structural LP axis spans the reduction in costs through the elimination of waste (Freire 1995). Among the various categories of waste, the areas of intervention targeted, for example, waste from excess production (reduced through the just-in-time concept and through production level planning); waiting times (through means of optimising the layout and the automatization and autonomy of production equipment); transport (through the Kanban system, levelling production output and optimising the layout); processing (through improving working processes and TQM); managing inventories (reducing stock levels, materials in circulation and planning production as efficiently as possible); movements (rationalising working processes) and the waste resulting from products with defects (via TQM).

The optimisation of the layout was an equally important dimension and incorporated the systematic adaptation of physical and human resources to variations in workloads (Bamber and Dale 2000). This optimisation enabled not only adjusting production to variations in demand but also the more efficient management of resources with corresponding increases in productivity. The Kanban method, despite representing only a simple technique, also proved central to LP as this enabled the implementation of the just-in-time (JIT) approach. This basically consists of recording in real time the product references that are then undergoing processing or that require prior processing. That the necessary component requisition gets undertaken not by the planning department (as was the current practice under the Taylorist-Fordist model) but rather by the workers themselves at the moment in which such are necessary ensures the avoidance of accumulations of stock. This procedure, designated pull production (Skorstad 1994), guarantees that the required quantities correspond exactly to the real needs, avoiding the build-up of excess stocks and inventories and correspondingly bringing about more effective control over the entire manufacturing process.

JIT constitutes one of the most distinctive characteristics of LP. In the strictest sense, this simply means that the pieces should arrive on the production line at the exact moment and in the exact quantities needed for their respective application (Karlsson and Åhlström 1996). The implementation of JIT not only requires the effective deployment of the Kanban system and the other aforementioned management techniques (Wood 1993) but also the heavy intervention of workers, especially in terms of manufacturing surveillance and supervisory activities, resolving operational problems and continuous improvement processes (Kaizen).

LP, while having derived from the Taylorist/Fordist model, readapted the original model to incorporate innovative techniques that enabled the implementation of more flexible management for production processes, reducing costs and raising the overall quality standards and therefore achieving through this approach, additional gains in productivity.

2.3 *Supplier Networks and Types of Inter-company Relationships*

However, the innovations introduced extended beyond the optimisation of the production process. LP also incorporated a new structure of productive organisation based upon establishing dense chains of geographically clustered suppliers (Ferreira et al. 1994). Following the launch of JIT and the eliminating of tasks that did not bring any added value to the final product, productive activities were deverticalised, segmented and externalised to outsourced chains of subcontractors.

Initially, the optimisation of supplier networks (France, Commissariat Géneral du Plan 1990) incorporated long term relationships based upon criteria of reliability and trust. This generally assumed exclusivity in the relationship within a pyramidal

structure, hierarchically ordered into successive levels of suppliers. This also required geographic proximity, especially for the suppliers of components with significant value to the final product or of importance to maintaining consistent levels of production output.

However, this matrix for inter-company relationships has since undergone modifications. Despite the surviving predominance of long term relationships, there have been rising levels of recourse to suppliers internationally (Hiroyuki 1998) and as reflected in multi-sourcing policies as a means of maintaining a downward pressure on prices. The importance of involving the supplier in the continuous improvement process has also gained ground. In this case, the maintenance of the supplier relationship now depends not only on compliance with quality standards, specifications and delivery deadlines but also the capacity to adapt to the various impositions of the contracting company and the resulting need for innovation (Lambert et al. 1998).

2.4 *Organising the Workplace and Managing Human Resources*

The introduction of innovations to the productive process and the organisation of production came about once again through the differentiated management of human resources. The emphasis attributed to teams and continuous learning processes and the introduction of quality circles, the focus on learning, multi-tasking and operational flexibility were all associated with symbolic management centred around the common sharing of objectives and a company team spirit and representing the most innovative aspects of LP. Without boosting the scope of worker intervention in the working process, there would be little likelihood of implementing the management techniques underpinning TQM, JIT, optimising layouts; eliminating waste, etcetera (Skorstad 1994).

LP particularly benefitted from the specific culture that served as its incubator. Characterised by a strong sense of community, harmony of values, commitment towards common objectives of which rigour and perfectionism were integral dimensions, there was also an underlying presence of workers with a strong sense of dedication to the company and a willingness to do their best coupled with a high capacity for adaptation (Coriat 1991).

The fact that employees have to deal with, and especially in initial phases, various diverse operational problems (such as the lack of components, excess stock levels, problems with manufacturing or downtime, for example) generated the need for more direct intervention on their behalf. This required members of staff to hold the capacity not only for undertaking routine operations but also for resolving operational problems, ensuring quality control and intervening to prevent any incidence of product defects (Beauvallet and Houy 2009).

Given this expansion in worker functions, there arose the corresponding need to foster the incentives necessary to guaranteeing the higher levels of performance, greater proactivity, the critical spirit and high levels of motivation. Within the framework of material stimuli, the distribution of profits generated a particularly important impact alongside job security policies. The deployment of symbolic management techniques, such as public recognition, standardised uniforms, identical social benefits and shared common spaces, for example Kovács et al. (2014), proved of equal relevance. Furthermore, there is the value placed on a homogenous culture, unit centred and striving for consensus, strengthened by the absence of independent trade unions and deepening the sense of work ethic, guided by common objectives and high levels of performance.

The very suggestion box system and the process of continuous improvement (Kaizen), rank as the most emblematic LP innovations within the framework of human resource management and deployed above all as powerful instruments for the management of persons. The need for workers to optimise processes, detect problems and correct setbacks extended to a predisposition for cooperation, stimulating the capacity for initiative and raising the sense of worker responsibility. While some estimates state that the resulting quality circles do not resolve more than 15 % of the quality control problems (Juran and Gryna 1991), this organisational form is known to generate a fairly high level of motivational impact. The applied human resource management instruments thus comply with a dual objective: rendering feasible the new production management principles and guaranteeing compliance with the operational objectives established.

3 Impact of Lean Production on Organising Work and Health and Safety

After over three decades, the principles of LP have spread far beyond the original Japanese context to enter into the most diverse sectors and territories worldwide and with many workers now experiencing forms of lean management in their workplace. Despite a lack of any broad consensus over the actual impacts of LP and with shortcomings to the scope of analysis on this field, various studies have already warned that the advantages returned by LP in terms of economic performance do not always bring about improvements to the quality of life of employees (Rinehart et al. 1997).

Furthermore, analysing the impacts of LP proves difficult and complex given such is the diversity of the contexts to which the model has been applied. Additionally, these processes often turn out to be hybrid forms that render analysis of the LP impact still more complicated in terms of ascertaining the attributable implications. Opting for the assumptions underlying a critical perspective, we present below some of the themes that have consistently featured in research on this theme.

3.1 Impacts of Lean Production on Occupational Health

One of the most frequently studied facets concerns the effects of LP on the occupational health of workers and the associated risk factors. Longitudinal analysis carried out by Koukoulaki (2014), spanning some two decades of research on this theme, makes it more than clear that despite the diversity prevailing in the conclusions reached, some LP practices bear unequivocally negative effects for the health and wellbeing of workers.

This study also reveals how research conclusions have diverged over the course of time. They moved on from a strongly negative perspective, especially in the initial phase to a vision encapsulating mixed effects, depending on the management style and its form and style of implementation. The first studies, primarily targeting the North American automobile industry, took place in the 1980s and 1990s and reported on an intensification of working rhythms and speeds and the presence of monotonous and repetitive tasks with deeply negative impacts on the health of employees. Later studies, mostly focused on European contexts, following the migration of LP into the service sector, highlighted the negative psychological effects and the stress caused and, even while demonstrating the presence of mixed effects (hence, both positive and negative), with the latter tending towards a lower level of incidence. After 2000, studies encapsulated a broader range of services with the results proving still more controversial given their portrayal of both positive and negative effects (Handel 2014).

Despite the clear differences, there are still some factors drawing a broad consensus, including how the negative impacts of LP proved particularly strong in the automobile industry. There are various studies demonstrating how the transposition of LP to the automobile sector drove an intensification of the pace of work and a reduction in the working cycles (Rinehart et al. 1997; Parker and Slaughter 1988; Dassbach et al. 1994). The continuous search for means of reducing downtime and other periods of inactivity led to a failure to consider the minimum cycles of rest necessary to the recovery of the worker and contributing towards a heightened risk of muscular injury. The rotation of working posts, deployed by some companies as an alternative strategy, turned out ineffective as this rendered the identification of those working posts causing physical problems still more difficult. The option in favour of the introduction of ergonomic improvements and technological means of support returned greater efficiencies that improved on the physical conditions in which the jobs got done. However, there remains clear evidence testifying to how some lean production managers opted for still more rigorous recruitment procedures in order to select workers less susceptible to workplace injuries (Huxley 2015). In this case, workers unable to adjust to the demanding pressures of LP would have to leave and accept some form of disability or invalidity compensation payment.

The literature also attributes relevance to how the intensification of working speeds was closely associated with the deployment of specific lean management techniques and particularly the case with JIT production (Rinehart et al. 1997; Koukoulaki 2014). This finding led some authors to consider that the negative

impacts do not stem from LP in the general sense but are interrelated with the way in which certain principles undergo implementation by companies. The research findings of Parker (2003) conclude that the installation of an assembly line generated negative effects on employees, including an increase in workplace depression. However, the negative effects resulting did not prove as extreme as in cases of the introduction of team working or the formalisation and standardisation of working patterns and flows (e.g., in reducing inventories). Deepening this perspective, Conti et al. (2006) also identify specific working practices that were clearly related with workplace stress. Their findings particularly emphasise practices involving the raising of the rhythms and intensity of work, eliminating resources, working longer hours than otherwise wished for, shortened time cycles, undertaking the work of absent colleagues, feelings of guilt over the occurrence of defaults and as well as ergonomic difficulties.

These authors also highlight the fact that the actual impacts of LP may vary in accordance with the management style and the means of implementation. The strategies and options taken by managers thus serve to strengthen or weaken these negative effects. For example, options over the extreme elimination of "redundant activities", with direct effects on the intensification of work may be minimised when accompanied by other measures designed to soften the stress resulting such as awarding greater autonomy or supplementary support for teams. According to Westgaard and Winkel (2011), options in favour of these auxiliary measures (such as improvement programs for example) do serve to offset and cushion the negative impacts of lean systems.

Despite the diversity existing, there is an analytical consensus around how specific LP techniques generate negative impacts on the health of workers above all those interlinked with the intensification of labour and working routines and heightened stress levels. Even after workers get adapted to LP practices, they remain critical of the additional heavy workloads, resulting from variations in demand, the high production patterns and standards, the interruptions caused by technology and even failures in the supply chain (Huxley 2015). Figure 1 displays a summary of the potential risk factors associated with LP by Koukoulaki (2014).

3.2 Impacts of LP on the Organisation of Work

In an initial phase, LP emerged associated with more qualified models of labour featuring higher levels of both participation and autonomy. However, many of the original assumptions were subsequently called into question by later studies (Parker 2003; Bruno and Jordan 2002; Jones et al. 2013). From early on, researchers such as Klein (1989) have warned of the excess of optimism that LP induced changes may evoke. We set out below a summary of the main criticisms of LP within this scope.

One of the most recurrent criticisms derives from the maintenance of Taylorist organisational principles in the workplace. While LP assumes a broadening of

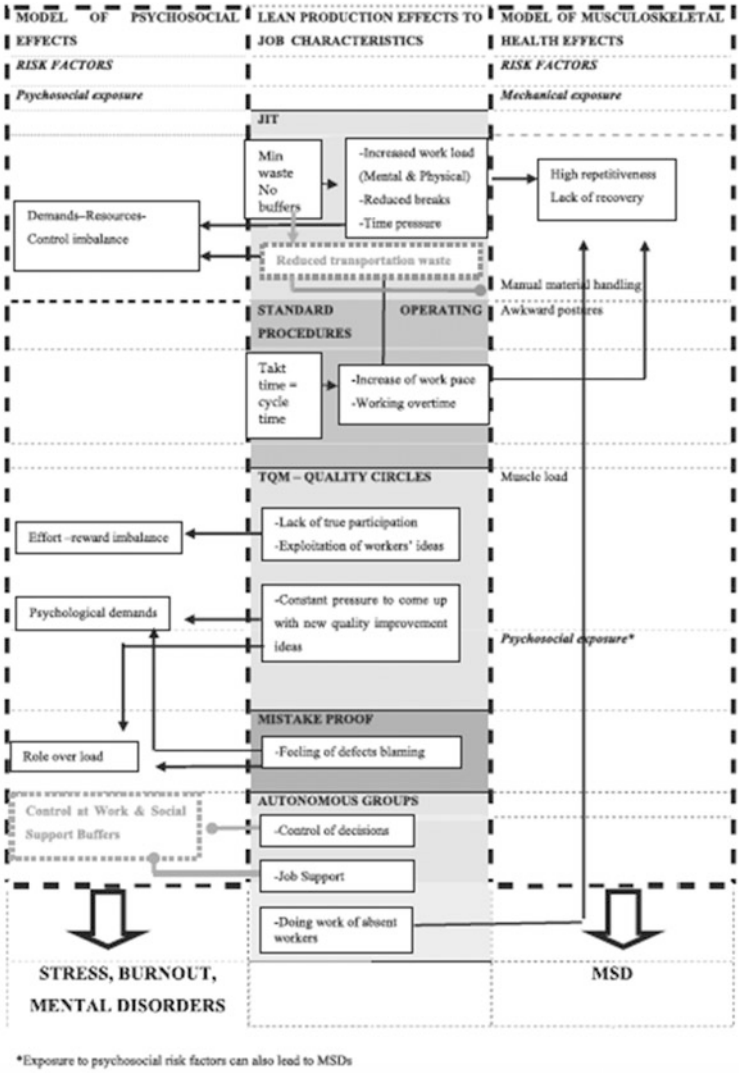

Fig. 1 Interaction model of lean production characteristics with risk factors. *Source* Koukoulaki (2014)

tasks, these are above all horizontal in nature and eligible only to the extent workers are able to alternate between different tasks. Maintaining the fragmented character and standardised nature of work means there was no significant corresponding increase in qualification with multi-skilling remaining predominant while tightening short and rapid working cycles. This also retained the assumption that efficiency stems more from the rigid and a priori detailed predetermination of workplace tasks and job content rather than the autonomous management of tasks by workers as is

the case with other more qualified models of labour organisation (Skorstad 1994; Wood 1993; Kovács and Castillo 1998). The maintenance of standardised and individualised tasks does not enable any enrichment of working content or any greater qualification of labour.

The affirmation that LP induces greater participation has also come in for some very close questioning. The level of worker participation has also displayed significant limitations. Their intervention has remained restricted to quality circles, maintaining the mechanical execution of tasks that the operators themselves recreate. This becomes compounded by how this same intervention may prove punitive to the workers as the end result may incorporate another intensification of working practices (Kovács et al. 2014). Studies carried out on LP in the automobile industry, such as those by Wood (1993), Skorstad (1994) and Rinehart et al. (1997), for example, report that the presence of quality circles or suggestion programs not only do not introduce major alterations in terms of participation but also inclusively imply an intensification of the patterns of work. The research project carried out by Zhang (2015) corroborates this position. The majority of workers interviewed considered that employee participation programs do not endow them with any greater level of intervention in the workplace. On the contrary, interviewees stated that the suggestion program did not extend beyond rationalising the production process as this focused detailed analysis on how to guarantee gains in productivity and reduce waste and having also resulted in both higher pressure and greater workloads for members of staff. Equally, the research findings of Bruno and Jordan (2002) from a Mitsubishi Motors cohort, where LP was fully implemented over an 8 years period, also report that the workers expressed frustration towards the rhetoric of empowerment within an environment they state does not provide them with any real power. This extends as far as the expression of feelings that the management had deployed the production system against them.

We would also additionally state that even in those cases where there is a higher level of worker intervention (as in continuous improvement processes), the decision making continues to follow a descending order (Wood 1993). This conveys how workers remain subject to the Taylorist stipulation holding that design and planning belong to the management sphere of competences. This also reflects how participation remains conditioned by certain levels of tolerance given that suggestions only get accepted when not calling into question the production parameters and the established prevailing power relationships. To this end, the scope of worker intervention remains that of the productive and operational spheres and dependent on hierarchically structured decision making processes, especially for suggestion acceptance and implementation (Kovács et al. 2014).

Another assumption subject to close scrutiny encapsulates the perceived rise in empowerment and autonomy. From the outset, various research findings warned about how the continuous search for new means to optimise processes and reduce costs leads to the standardisation of processes and the introduction of centralised systems of operational control that in turn imply increased levels of control and supervision over workers. The very JIT system of Visual Control Methods, for example, enable real time control over daily production targets, downtime and other

quotas set for completion (Zhang 2015), deepening the level of supervision over workers and exercising extremely strong pressures for compliance with the predefined production objectives. Furthermore, they supply employers with an additional tool for evaluating the capacity of workers for undertaking particular jobs at faster and more intense paces (Huxley 2015). Hence, the deployment of performance control systems within the context of LP fosters tighter controls over individual performance levels and opens up the way for production targets to be adjusted and aligned with the maximum individual capacity levels. Such a situation may easily give way to feelings of instrumentalisation (as merely in the service of meeting production objectives) and, inclusively, inducing the loss of any meaning to work.

The very concept of team, core to LP, has also fallen under a critical spotlight. Surveys carried out in the automobile industry, for example, production line workers at Cami Automotive, Ingersoll, Ontario by Rinehart et al. (1997), returned fairly revealing evidence as regards the perceptions on the way team working actually took place. In an initial phase, the answers given to questions about experiences of team working remained broadly favourable. However, follow-up studies then later revealed growing levels of scepticism. In particular, references detail the pressures placed on teams to assume more tasks or even to accept working with a lower number of colleagues. In some cases, teams were pressured into reducing recourse to team "floater" positions even in situations when a member of the team was absent or working a restricted timetable. As Huxley (2015) refers, the presence of stress, especially when team working interlinks with a shortage of staff and may even prove more prejudicial to individual wellbeing than the demands handed down by a traditional supervisor.

Further weighting stems from teams representing a factor of support and backup with these dimensions also proving a vicious circle with negative unintended consequences for members of staff. Authors such as Huxley (2015) detail how these may end up serving as another means of controlling the performance of their members and lead to peers exercising pressure on their colleagues, especially those unable to execute a particular task as easily or as swiftly as themselves. In such cases, it would seem as though the principles of cooperation and trust get transformed to fall into the service of a purely mercantilist and economic logic with an inversion in the relational assumptions implicitly established (Rego and Pina 2005).

Other criticisms reference the ways in which technology has become integrated into LP. Within this scope, various authors (Kovács and Castillo 1998) highlight how LP favours a technocentric perspective on the utilisation of technology. Contrary to an anthropocentric view, that prioritises flexible and decentralised systems in which technology builds and expands on human competences, the technocentric perspective focuses upon the maximisation of control and the centralisation of operations. The investment in developing integrated and centrally controlled systems contains an underlying agenda of self-regulation via means of formalising and incorporating human knowhow into machine software. This also strives to reduce the operational tasks and eliminate human variability. This hence

privileges the technical aspects to the detriment of the human facets deemed merely as some additional cost that requires cutting and shrinking.

Gaining a similar profile are those voices raising criticism of human resource management strategies applied within the context of the lean system. Originally, LP emerged associated with job stability, opting for multi-tasking and multi-skilling in order to guarantee flexibility and adjusting to the fluctuations in demand. However, there are many lean organisations that have favoured quantitative flexibility even while combined with partial qualitative flexibility (Wobbe 1992). This situation has led to the externalisation and outsourcing of large swathes of the workplace, contributing to the weakening of worker positions in the job market and subject to greater employment instability, fewer opportunities for training and improving on their qualifications, reduced salary levels and precarious working conditions.

The model of labour relations underpinning LP approaches has also raised problematic issues. Critical analysis refers to how LP values a harmonious culture, a sense of community and a search for consensus whilst, in this process, tending to neutralise pluralism and conflicts of interest and marginalising the presence and role of trade unions (Huxley 2015). Emerging in its place, there stands a more limited conception of the employee, perceived in an individualised fashion, as if somebody awaiting their chance to participate in working entities in a unitary partnership established by the employer. In this context, trade unions fundamentally serve as a framework institution for employees, aggregating interests and establishing commitments structured around compliance with company objectives (Kovács et al. 2014). Critical voices refer to how LP deploys control through consensus rather than direct and coercive control (Kovács et al. 2014). Regarding this issue, Stewart et al. (2009) argue that LP, through such means, has proven able to entirely remove the voice and the expression of workers. Carter et al. (2011, 2013) put forward similar arguments following their study of the adoption of LP in the United Kingdom civil service.

It remains too early to fully determine the psychological and social consequences of a career and a life spent working under LP. However, we would here highlight that the impacts of LP do not occur independently of contextual factors. On the contrary, comparative studies such as that by Lewchuk et al. (2001), focusing upon LP units in the automobile industries of Canada and the United Kingdom, for example, demonstrates quite clearly how the management strategies applied (such as the productivity targets set, for example) or the prevailing type of industrial relations hold significant influences over the quality of working life (Parker 2003; Shah and Ward 2003).

The observation as to how external factors and management options shape the way in which LP gets implemented, and consequently the types of impacts generated, thus necessarily requires analysis of the surrounding macro-economic environment to LP practices.

3.3 *Lean Production Within a Neoliberal Political-Economic Context*

In order to more broadly grasp the scope and nature of the effects of LP for employees and the quality of their working lives, we also need to take into consideration the current economic context. Within this scope, some basic questions emerge. Why has LP expanded within a markedly neoliberal political-economic context? In what way have its core principles been subject to the competitive demands prevailing? What impact does this have on employees and working contexts? This debate necessarily incorporates the fact that the rollout of LP took place within a post-Fordist and neoliberal context.

The rupture in the equilibrium that had sustained Fordism and the interlinking crisis and recession of the 1970s opened the path for challenges to Keynesian policies and for the affirmation of neoliberal principles. "Neoliberalism" represented a "return to classical liberal economic principles emphasizing free markets with minimal regulation by other agencies, most notably the state" (Huxley 2015: 143). Within this framework, there was rising pressure to scale back the intervention of the state whether in terms of the reallocation of resources or in the provision of services to society and deemed fundamentally restricted to acting in the commodity and labour markets. In parallel, there was the advance in privatisations, the deregulation and liberalisation of markets and fostering the economic and financial globalisation seen over recent decades.

The economic point of view of the neoliberal model, characterised by the primacy of the "creation of shareholder value", strengthened the pressures on obtaining the maximum level of profitability over the short term. This economic rationalisation essentially took shape through three means: (1) optimising productive processes; (2) economic restructuring on a global scale sustained by the downstream structuring of outsourced and subcontracted companies and (3) the reduction in labour costs. Across each one of these facets, lean production brings significant added values and to the extent of contributing a strong capacity to strengthen the dominant economic model.

In terms of the management of production, the advantages to lean production are clear. Based on the "less is better" approach, LP drives the implementation of simplified systems, orientated towards quality and carefully adjusted to client demands. Characterised by short working cycles and by the utilisation of systems that may easily be reconfigured and expanded, LP swiftly adapts to the constant variations in the products and services required by the market. This also enables the updating of working methods and the surgical incorporation of technological advances that thereby avoid major investments in capital that rapidly tends towards obsolescence.

However, LP also strengthens the systemic rationalisation that underpins the new world economic order. Centred on the segmentation of productive activities and interactions through networks of companies, this ensured the greater concentration of powers of decision making and strengthening the major corporations that

correspondingly accumulate an enormous power of decision and influence over the destinies of hundreds of millions of persons all around the world (de Lisboa 2002) and in various cases outstripping the scope of action of nation-states themselves.

Within this context, LP has also itself played a fundamental role. Whilst the Taylorist logic was restricted to the universe of the company or the factory, LP extended to the entire chain of value. Through the design of modular systems, economic transactions became possible among the most diverse business units and outsourced firms and also expanded the management of quality to the chains of supply. Lean production methods thus enable the strengthening of the logic driving this current economic model based upon the founding of global chains of value with enormous powers of decision making at the global scale and, on the way, reconfiguring, sector by sector and territory by territory, every aspect of the economy.

We would furthermore point out that LP made an unparalleled contribution towards attaining the third requirement in this logic: the reduction in the cost of labour. This was fundamentally driven by two different facets. On the one hand, in proposing techniques for the optimisation of labour and eliminating redundant tasks, LP not only rendered work more efficient but also extended to fostering its intensification. The very management culture and the deployment of more participative approaches also nurtured high levels of performance then driven by centralised control systems. In this case, the orientation of staff towards fixed targets for quality, productivity and flexible management emerge as core imperatives for profitability and to the detriment of any focus on valuing human inputs, the meaning of work or the striving for better qualified employment and personal development.

On the other hand, the search for a labour force able to provide swift, low cost responses to the demands of the market place has led to the segmentation of workers. Recourse to "periphery subcontracting", characteristic of the lean production model has served to establish a growing pool of "flexible" workers. In this context, recourse to new forms of employment, such as part time working or temporary forms of employment, for example, has driven the segmentation of workers and divided them into better paid employees, with relative job security and unionised, and external third party workers with lower levels of remuneration, less stable employment and corresponding greater levels of precariousness.

The contracting of part time workers or those on temporary contracts at lower wages removed the pressure on salaries and even led to a reduction in indirect costs through the elimination of benefits. Indirectly, this brought about downward pressures on the expectations of workers especially in contexts of high levels of unemployment.

This movement is not restricted to developed countries and instead spread to other geographies and territories particularly impacting on workers with lower levels of social protection and opening up the scope for the hyper-exploitation of the more vulnerable groups such as migrants, young persons, women and more elderly workers. In this case, there have been imbalances arising in the power relationships between employers and employees and to the clear detriment of the latter. This situation, to a greater or lesser extent underlying the LP labour relations

model, only gets enhanced by the respective weakness of trade union powers and capacities.

The ways in which LP principles have been applied in the establishing of conditions have served to strengthen and reinforce the neoliberal political-economic system. Indeed, LP not only enabled the reproduction of the flexible employee, willing and able to engage in a variety of working situations and with limited expectations in terms of security, salaries and working conditions, but also fostered conformity through collaborative cultures that effectively guaranteed lower levels of resistance.

This finding extends equally to another situation; that of the difficulty workers encounter in countering the legitimising discourse of LP. There is significance in the fact that workers face major resistance whenever expressing their objections to LP. Taking as his example the expansion of LP into services, within this framework Huxley (2015) refers to how professionals encounter difficulties in questioning programs that emphasise the quality of service and the best results for the beneficiaries and recipients. Just as industrial workers cannot but be in favour of quality in manufacturing, service professionals cannot stand in opposition to the improvement of quality in the provision of services despite the many who state that lean management models are accompanied by measures that boost the intensity and stress experienced by employees alongside labour types susceptible to inducing precariousness.

4 Conclusion

The principles behind LP have attained a notable level of diffusion having undergone implementation not only within the context of the automobile industry where they originally emerged but also in the most diverse and different sectors of activity. Despite lean production tracing its origins to the Taylorist/Fordist model, the approach has taken on distinctive characteristics in accordance with the need to adjust and adapt to the economic realities of post-war Japan with such differences emerging across three leading fields of action. Underlying LP is a differentiated style of managing production based upon core concepts such as just-in-time (JIT) as well as total quality management (TQM). These in turn imply the development of new forms of organising production based upon external networks of suppliers significantly contributing towards reconfiguring the economy on a global scale. LP also led to adaptations to the models in effect for the organisation of labour and attributing particular importance to setting up working teams and getting employees involved in continuous improvement processes, introducing quality circles and suggestion systems.

While initially LP appeared associated with skill development, increased employee participation and an enhanced quality of working life, various researchers

concluded to the contrary of these assumptions and instead identified strong limitations to LP. The core criticisms have tended to target the organisation of labour and the working conditions prevailing. Some of these analytical findings especially emphasise how LP does not do away with the classical principles underpinning the organisation of labour, entitled internalised Taylorism. They also describe how the continuous search for productivity gains strongly induces management practices seeking to drive and increase the intensity and rhythms of work. Within this scope, LP thus emerges as interlinked with a rise in the risk of occupational diseases (muscular injuries, physical exhaustion and high stress levels). Other critical perspectives target the intensification of control, the decrease in autonomy and the reduced scale of participation. This all conveys how the principles of cooperation, participation and valuing human inputs undergo change before getting redeployed in the service of a purely mercantilist and economic logic. This also references how the outsourcing of activities, another underlying principle of LP, opens up the way for the segmentation of labour (downsizing, temporary and part time work) and contributes towards greater workplace insecurity and precariousness.

Recent studies have also concluded that the impacts arising from the LP system differ in accordance with the management style prevailing and the form of implementation with LP not in itself the only factor generating negative impacts. The management options taken in the course of implementing LP (productivity targets, leadership styles, for example) and the contextual variables (type of labour relations, competitive context, for example) significantly influence the way in which LP principles get applied in practice and consequently shaping their impacts in terms of quality of working life.

Correspondingly, analysis also needs to take into account the neoliberal context that has sustained the spread of LP. Neoliberalism, in claiming to foster economic growth through strengthening the "free market", reducing the scope of state intervention and cutting back the costs of labour, has served to deepen the imbalances in the already existing power relationships to the detriment of workers. Furthermore, enacting labour market flexibility, weakening the welfare safety net provided by the state alongside undermining the role of trade unions have all combined to heighten the level of vulnerability of workers and their terms of employment. At the company level, neoliberalism drove the most contested facet of LP. This presumed the adoption of flexible labour practices that extend to outsourcing, third party contracting and the segmentation of the labour force and, at the level of labour relations, reducing the recognition attributed to trade unions and weakening negotiation mechanisms. Within this context, while on the one hand LP drove the reproduction of the neoliberal model, on the other hand, this also resulted in the most contested feature of LP; its option in favour of the concept of a flexible worker, able to deal with a variety of situations, on low wages, with limited expectations in terms of job security and benefits, lower levels of resistance and highly vulnerable to deteriorating terms of existence.

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Lean and Agile Supply Chain Management: A Case of IT Distribution Industry in the Middle East

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Abstract Supply chain management (SCM) as one of the important research topics plays a major role in performance of organizations/stakeholders operating as the supply chain tiers. Many studies have been published to find the best theory and strategy, which can be applied to each industry or market. SCM is still a developing field and there are still gaps in understanding what its design strategies and boundaries are. There are two major modes of managing supply chain (i) lean supply chain which emphasize supply chain efficiency and (ii) agile supply chains which emphasize supply chain responsiveness and flexibility. This chapter reviews two modes of lean and agile supply chain in Information Technology (IT) distribution field in the emerging markets in the Middle East. The chapter presents key characteristics of lean and agile supply chains in IT industry. It investigates how a suitable supply chain policy can be adopted by IT hardware and services distributors in the Middle East through a case study. Is it a lean supply chain policy which emphasizes efficiency? Or is it an agile supply chain policy which emphasizes responsiveness and flexibility? Or is it an integrated lean-agile policy based on specific activities aimed at specific results? The chapter discusses leanness and agility with a focus on the main activities carried out by IT distributors that include orders processing, professional services, inventory and logistic services. IT industry has been characterized by continuous and rapid market and customer requirements changes. These changes are applicable on all IT products/services such as networking, information security, software, service support, smart phones, IP telephony, CCTV, wireless…etc. Therefore, in IT industry, both manufacturing and service operation should be included in planning processes across its supply chain. The primary data was acquired through specifically designed interviews. The questions were based on the core factors investigated in the literature of operation management, strategic management and marketing related to IT supply

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chain. The core factors, which are found critical are customer satisfaction, process management, inventory levels, capabilities and services provided, are explored and analyzed through a case study in the Middle East.

1 Introduction

Global economic integration is happening. The Middle East countries have taken great steps to develop their various industries in all sectors. That necessitates integration with the latest technologies around the world and establishing a proper supply chain. The Information Technology (IT) business has been developed considerably during the last decade and many vendors and manufactures seek to have channels in the area.

IT distributors are organizations, which are known as end-to-end supply chain and deliver the IT solutions and products ranging from vendors to resellers who implement the solutions to the end user. In some cases, IT distributors aim to reach the end user with delivering the best service and adding value to all stakeholders. This point will be discussed in details in this chapter.

Supply chain management (SCM) and distribution management could be incorporated through a common strategy. Distributors in IT industry may involve functional and innovative products and the decision-making to adopt the right strategy or balance between stakeholders could be difficult where each strategic business unit (SBU) has its own end objectives. The trade off between various objectives of stakeholders should be considered under the umbrella of a distributor's overall strategy.

The type of distribution channel is known as 'producer to distributor to business customer', it is also known as 'service provider to consumer or business customer'. Sometimes, it is important to have direct relationship between service providers and customers. In some cases, retailers, as intermediaries, will be added to the supply chain for delivering specific IT products. The intermediaries need to be linked with the right products, in the right quantities, in the right locations, at the right time (Jobber and Ellis-Chadwick 2013).

In this chapter, a case study is adopted to investigate a contemporary phenomenon and within its real-life context and to cope with technical distinctive situation with various variables. Comparative analysis of findings, which rely on multiple sources of evidence from different companies, is used to examine the difficulties in implementing the lean/agile procedures and techniques in the selected target organizations. The following stages are followed in the case study for each organisation under study:

- Select representative case from organizations.
- Previewing investigations to get familiar with the context
- Data collection
- Data analysis

Match the operations resources in supply chain with market requirements by using Fisher's (1997) model to compare the data.

The research is intended to find the most efficient supply chain management policy for the distributors in IT industry, and to determine the areas to which firms should focus on in order to achieve competitive advantages and meet the customers' requirements and satisfaction. Traditional competition-based strategies (red ocean strategies) can be shifted towards blue oceans strategies, which are based on market boundaries and industry structure along with the actions and beliefs of the industry players (Kim and Mauborgne 2005). The blue ocean strategies will be discussed while presenting the case study with the research findings.

In this study, we will move step by step to determine the best policy a distributor can adopt in order to achieve competitive advantages along with meeting customer needs and minimizing the distribution cost through a lean or agile procedure.

2 IT Distribution and Supply Chains

The section presents the main activities of distributors and is intended to find the best practice that can reach a balance between fulfilling customers' satisfaction and achieve organizations' objectives by trying to discover and determine the best supply chain strategy.

The IT industry has been characterized by continuous and rapid market and customer requirements changes. These changes are applicable on all IT parts such as networking, information security, software, service support, smart phones, IP telephony, CCTV, wireless…etc. So in the IT industry, both manufacturing and service operation should be included in planning processes.

IT hardware and services distributors or known also as Supply Chain Solution Providers or IT distributors are intermediator between manufacturers from one side and resellers from the other side. The solutions and services they provide are linked directly to the brands they hold in their portfolio to provide the best IT solution in the market. The brands of leading manufacturers of information technology, telecom and life style products are mainly hardware and software in addition to services related to these products. These services could be technical services such as pre-sales services like providing the right bill of materials for specific requirement and proof of concept (POC) presented to the reseller or end user to convince about the performance of x product, or it could be post-sales services such as implementation and services annual contracts. Another service is logistic services for hardware.

In other words; the type this supply chain is known as 'Producer to distributor to business customer'. Distributors are also known as 'Service provider to consumer or business customer' so sometimes it is important to have direct relationship between service providers (distributors) and customers (End users). Figure 1 illustrates the position of distributors in the supply chain:

Fig. 1 Distributors and resellers positions in supply chain

2.1 Definitions

Who is the end user? End user may be any company or organization in all sectors such as government, telecommunication service provider, hospitality, construction, or even individuals for personal use.

Who is the reseller? Resellers are system integrators for information and communication technology systems from old legacy systems to cloud computing, computer shops & retailers.

Who is the manufacturer? Manufacturers are the elite companies who produce the technological hardware and software such as Cisco, Juniper, HP, Dell, Avaya, F5, Samsung, Apple, Sony, Asus, Trend Micro, Symantec, Blue Coat, NEC, Motorola, Palo Alto, Red Hat, Microsoft, Sophos,…etc.

Who is the distributor? Distributers can play an important role in the supply chain, from just-in-time procurement strategies to risk management, the can bring real value to their customers. Resellers are more likely to order small volumes of products frequently and partnership between resellers and distributors can provide continuity and trust in supply, but there are many challenges face the distributors. Distributors' main mission is to deliver the products/services as fast as possible with best prices and reduce cost as much as possible. This requires accurate strategies and plans on all levels of the organization.

2.2 How Distributors Work in the IT Supply Chain?

When an end user's IT division needs to get IT hardware or software for their organization such as firewalls, network switches, IP telephony systems, wireless devices …etc. they contact x reseller to provide the best brand which fit their network environment, the reseller will contact the distributor to provide the best products they have based on end user requirement, the distributor will design the best solution as a consultant and get in touch with the manufacturer for technical and commercial advices. Then the distributor will send the solution and the offer to resellers who share it with end customer.

If an end user agrees on the solution and the offer, they will submit a purchase order with reseller who will submit a purchase order with a distributor. If the distributor has the hardware in stock, they will deliver the materials immediately to reseller. If not, then the distributor will place an order with manufacturer and wait till the materials arrive to invoice it to reseller.

The end user may ask for a demo presentation before they decide to go with x product. The reseller will contact the distributor who will provide the same product/service with qualified people. The end user may ask the reseller for implementation after receiving the materials, so in case the reseller does not have the capability and ability to do it, reseller will contact the distributor to provide the requested service. These activities consider as added value services which differentiate a distributor from another tier in the supply chain.

As we see above, the multi layer supply chain may cause delay which is not acceptable by end user, so the distributors try to find the best way to balance between being lean and being agile with no effect on the overall performance. This is the most difficult practice all distributors face because the wrong decision could minimize the profit or loss customers which reduce the revenue.

IT distribution contains two parts: physical distribution and delivering technical services. The former contains: order processing, customer service, inventory control, warehousing, transportation and material handling. The latter includes: education, designing solution, Prove of concept, and implementation. Each part has its own distribution system which will be discussed in this chapter in order to find out a suitable supply chain management policy to be adopted in this industry. As illustrated in Fig. 2, physical distribution system for IT hardware products consists of: customer service, order processing, inventory control, warehousing, transportation, material handling.

To link Supply Chain Management (SCM) and IT distribution management, we need to look at the key mutual features as follows:

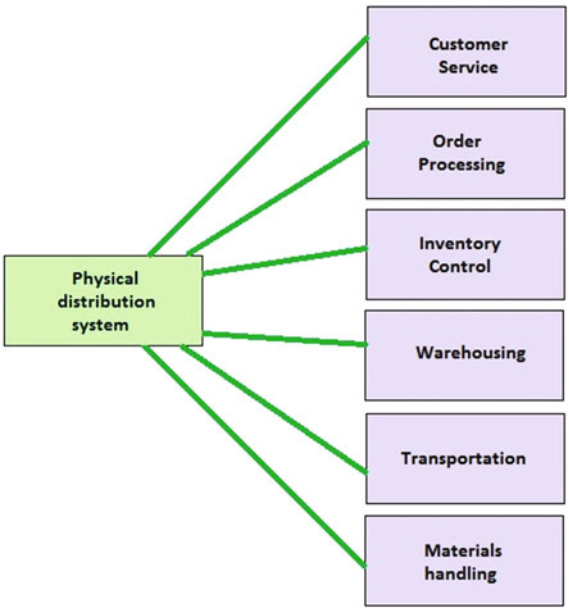


Fig. 2 Components of the physical distribution system *Source* Jobber and Ellis-Chadwick (2013)

- *Managing regional complexity* on supply chain to offer **"***unique value to customer***"**
- *Delivery* on this unique value with an economic proposition that is sustainable and not replicable long term
- *Consistency in delivery and innovation* of this unique value by being *lean and agile*
- *Lean and agile levers* People/process/system/carrier/upstream, downstream integration that contribute to the unique value

3 Supply Chain Strategies

The research in the field of IT distribution supply chain is limited, so we will review the literature which discuss about the lean and agile supply chain in general and will link it to the practices of IT distributors. Since the chapter is related to distribution policies and strategies we will look into the relationship between distributors and manufactures and the link between manufacturer's strategy and distributor's strategy in Supply Chain Management (SCM).

Supply chain performance is related to supply chain structure and control systems which aim to raise the performance of product management. A number of researchers illustrate the differentiation in implementation strategy through innovative design, price, advertisement, innovative technology and market segmentation (Porter 1980; Miller and Friesen 1986; Miller 1988; Hambrick 1983). The focus will be based on the priority of key factors according to many factors such as market share or competitiveness. Some strategies focus on increasing the inventory levels although the focus strategy is impacted by environmental changes while broad differentiation of strategies appear in dynamic and predictable environment. The focus strategies usually used by small sized organizations in order to respond quickly to the environment change. On the other hand, broad differentiation organizations need to emphasize the development and marketing based on the customer preference (Miller 1987; Burns and Stalker 1961).

3.1 Manufacturer and Distributor Relationship in SCM

In the distribution supply chain, a manufacturer may be known as a vendor or a supplier. The distributors usually go under a behaviour-based contract to follow the manufacturer strategy and this put them under monitor to deliver accurate results and low level of conflict in their goals and objectives. Anyhow, and according to (Lassar and Kerr 1996; Eisenhardt 1985) there is a high level of uncertainty in the results. According to (Lassar and Kerr 1996) manufacturers with differentiation strategy products expect a high margin so they support the sales promotions for

distributors since the final results are uncertain. Therefore, these firms follow hierarchy governing structure to minimize opportunistic tendency in the vendor and distributor relationship (Williamson 1996; Barney 1996).

SCM includes a flow between suppliers to end consumers (end-to-end) that contains many activities based major factors, which need to be determined and handled such as lead time, interdependence between supply chain members and a response point of supply chain.

Supply chain specialists in distribution field face many challenges while taking decisions due to the complexity of SCM because of the rapid change, uncertain business environment and continuous expanding. It is very difficult for them to specify and determine the cause of complexity and its drivers which affect the outcomes negatively. According to (Bozarth et al. 2009 and Closs et al. 2008); they need to understand the source of complexity in order to develop effective strategies and accomplish organization goals, which are not restrained by unwanted outcomes. According to (Choi and Krause 2006; Mentzer et al. 2001) supply chain complexity is identified as a key issue confronting supply chain managers with the drivers related to the environment conditions, globalization, and supply chain structure and customer expectations.

With the increase of uncertainty in business environments and the unstable risk due to the lengthy and slow-moving logistics, organizations are forced to find the best way to manage and structure its supply chain. Many researchers have suggested two main paradigms to manage the supply chain based on agility and leanness whereas some others have considered the integration between the two methods.

3.2 Agile Supply Chain

The markets witness a rapid growth in all areas nowadays, it became for all firms and operation managers to adopt an agile policies that they can fulfill the market needs in competitive environments at a short time. Agile supply chain is not a new concept, but its origin backs to flexible manufacturing systems in 1960s. It is defined by Christopher (2000) as a business-wide capability that embraces organizational structures, information systems, logistics, processes and mindsets. In general, agile supply chain is to be fast and flexible. Firms see the benefits of collaborative relationships within and beyond their own organization; they are finding that they can no longer compete effectively in isolation of their suppliers or other entities in the supply chain (Lummus and Vokurta 1999).

The IT industry has been characterized by continuous and rapid market and customer requirements changes. These changes are applicable on all IT products and services such as networking, information security, software, service support, smart phones, IP telephony, CCTV, wireless…etc. So in the information technology distribution industry, service operation should have the main focus in planning processes.

Vendors have to respond on that demand in fast way and should implement a system that can work in parallel with all these changes. So to be agile with respect to customers, the vendor has to be ready to fulfil the demand and plan it in advance. The system should be implemented on the processes, inventory, and on full operation cycle to achieve a short lead-time and satisfy the customers.

According to Van Hoek and Mitchell (2006), agile supply chain should be considered on all levels in any firm, from a strategic level to an operational level. Firms should respond to short-term changes in demand or supply quickly and to handle external disruption smoothly and be able to fast react on sudden peaks. Van Hoek and Mitchell (2006) following Christopher (2000): indicated four key characteristics for agile supply chain as follows:

1. It is always market sensitive and capable of reading and responding to real demand.
2. Supply information sharing between suppliers and buyers to create a virtual supply chain especially when the inventories replaced with information just as e-businesses.
3. Deep process integration between the partners for collaborative working methods and joint product development and common systems between suppliers and buyers.
4. It is network based with shared targets.

Figure 3 shows the four key characteristics for agile supply chain (Van Hoek and Mitchell 2006; Christopher 2000).

As can be seen in Fig. 3, agile supply chain is market sensitive and capable of reading and responding to real demand. Supply information sharing between suppliers and buyers creates a virtual supply chain especially when the inventories replaced with information just as e-businesses. There is deep process integration between the partners for collaborative working methods and joint product development and common systems between suppliers and buyers. Agile supply chain is network based with shared targets.

Implementing agility: There are many methods, which describe the best ways to implement agile supply chains. For example, Lee (2004) suggests the following implementation steps:

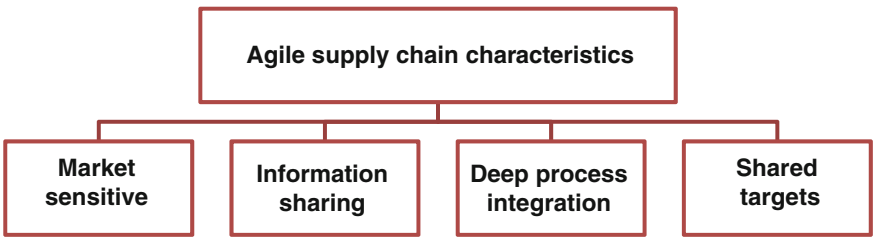


Fig. 3 Agile supply chain key characteristics

- Promoting flow of information with customers and suppliers;
- Developing collaborative relationships with suppliers;
- Designing for postponement;
- Building inventory buffers by maintaining a stockpile of inexpensive but key components;
- Having a dependable logistics system;
- Drawing up contingency plans and develop crisis management teams.

On the design level; agile supply chain is linked to manufacturing and logistics postponement strategies, which deals with delaying the start of activities until there is a real demand. The uncertainty in demand and supply is tied to the differentiation place and time of goods that occurs during manufacturing and logistics operations (Van Hoek and Mitchell 2006). According to Pagh and Cooper (1998), such a risk and uncertainty can be reduced or eliminated.

Many scholars have viewed agility as a flexible response to market needs so they focus one how agile practices—such as postponement strategy—are associated with agile performance by allowing more opportunities to respond to changes in best flexible way (Van Hoek et al. 2001). But the postponement can be useful approach in some information technologies industries, which have a short product life-cycle such as mobile industry.

Other scholars focus on speed as main element of agile supply chain by using technology as platforms that they can facilitate time reductions in the design and development (Sambamurthy et al. 2003; Frayret et al. 2001). Others emphasize the knowledge management as a main component of agility in providing awareness to change (Holsapple and Jones 2005; Dove 2005). But the agility in general is still ambiguous and researchers are trying to define the main factors and determinations of its charactristics.

3.3 Lean Supply Chain

The "lean thinking" idea has been explained by Womack and Jones (1996). The main focus of lean thinking has been on the reduction or elimination of waste. The lean supply chain policy has started in the 1960s with different name by Toyota know as Just-in-Time production (JIT), also known as Toyota production system (TPS). This methodology aimed primarily at reducing flow times within production as well as response times from suppliers and to customers.

Alternative terms were adopted by other manufacturers such as Motorola system which called short-cycle manufacturing (SCM) and IBM system; continuous-flow manufacturing (CFM). Lean principles are derived from the Japanese manufacturing industry. The term was first coined by Krafcik (1988) in his 1988 article, "Triumph of the Lean Production System". Many businesses have adopted the lean supply chain management in order to remain competitive in the global market (Schonberger 2007).

The organizations which try to reduce their cost and remove waste could adopt lean policy. According to (Shah and Ward 2003); the core thrust of a lean SC is to create a streamlined, highly efficient system that produces products at the pace customer demand with little or no waste. So in this way, the firms can increase the performance by reducing the waste and the cost.

It is essential for those who adopt the lean management policy to know how to improve flow to eliminate waste and reduce delays, how to improve quality and lower costs and how to make good decisions using evidence. In other words and according to Abdulmaleka and Rajgopal (2007); lean approach is to identify the types of waste in the value stream and implementing the necessary tools to eliminate them and minimize the lead time.

The Japanese have developed three terms '*muri, mura and muda*' which known in English as 'wastes' which refers to anything does not add value. *Muri* focuses on the preparation and planning of the process, or what work can be avoided proactively by design. *Mura* then focuses on how the work design is implemented and the elimination of fluctuation at the scheduling or operations level, such as quality and volume. *Muda* is then discovered after the process is in place and is dealt with reactively. It is seen through variation in output. It is the role of management to examine the *muda*, in the processes and eliminate the deeper causes by considering the connections to the *muri* and *mura* of the system. The seven "muda" are: Transport, Inventory, Motion, Waiting, Overproduction, Over-Processing and Defects (Womack and Daniel 2003).

3.4 How to Decide Which Supply Chain Policy is Suitable for an Organization?

Based on Fisher's idea (Fisher 1997); the supply chain policies that are seen to be appropriate for functional products and innovative products are termed efficient (or lean), and responsive (or agile) supply chain policies, respectively. It can be summarized as: 'Functional' products require lean supply chain management include keeping the inventories low to maintain fast throughput and reduce the amount of working capital tied up in the inventory. On the other hand; responsive supply chain policy stresses a high service levels and responsive supply to the end customer, so the inventory will be deployed as closely as possible to the customer. Figure 4 illustrates how these two different supply chain policies match the different market requirements implied by functional and innovative products.

Another simple but effective matrix proposed by Christopher et al. (2006) is based on demand and lead time characteristics to select the best policy could be adopted as shown in Fig. 5.

The main idea of this matrix is to clarify how demand/supply characteristics help determine the supply chain strategy. Christopher et al. (2006) believe that lead-time must be included in any useful taxonomy because of the critical impact that

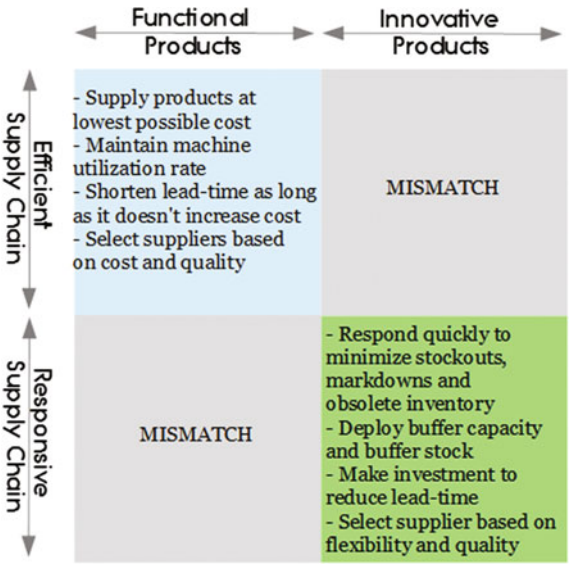


Fig. 4 Fisher's supply chain matrix: What is the right supply chain for your products? *Source* Harvard Business Review, March–April, pp. 105–116

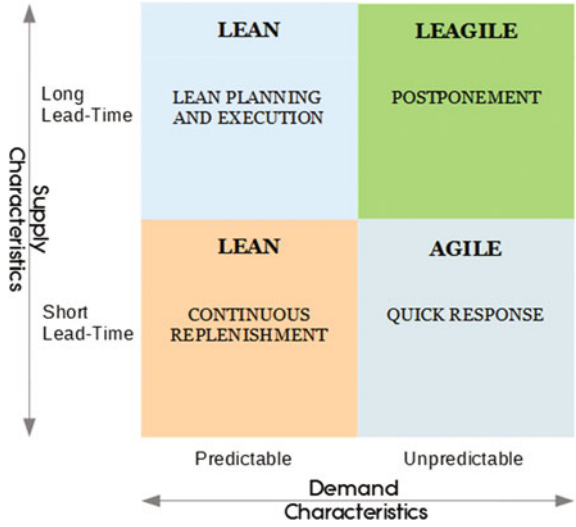


Fig. 5 Global Supply Chain Strategies Matrix. *Source* Christopher et al. (2006)

replenishment lead-times have on responsiveness to demand and because they have observed that globalization is tending to extend those lead-times, so they have suggested a simple three-dimensional classification appropriate for global supply chain. These are: Products (standard or special); Demand (stable or volatile); and Replenishment lead-time (short or long).

Thus, we found from the two mentioned researches above that we need to look into specific factors such as category of distributed products, demand and lead time

to measure and find out the best supply chain policy in distribution industry which will be also examined based on primary data to get the all details related to these factors in our case.

4 Critical Success Factors and Firm Capabilities

As discussed above, there are some key factors help us to determine the best supply chain policy. Fisher (1997) has focused on the type of products and suggested that functional products require lean supply chain policy but innovative products require agile supply chain policy. Christopher et al. (2006) have mentioned that lower manufacturing costs may well outweigh the higher costs of transport and the longer lead time but for other categories of products such as innovative products, this may not be the case as there are other factors should be taken into consideration such as "market mediation" capabilities—i.e. the technological expertise for electronic products for example, benefits of supply chain flexibility to cope with the demands of high-margin, high risk new products introduction. Christopher (2000) has suggested that lean policy work well where demand is stable and predictable and where variety is low. On the other hand, different approach has to be adopted when customer requirement for variety is high. Supply chain strategies and main factors which impact the decision of distributors in this regards will be discussed such as critical success factors and capabilities.

Critical Success Factors are valued by strategic customers or provide significant advantages in terms of cost (Johnson et al. 2014). Kim and Mauborgne (2005) suggested two concepts that help the firms to find the best way of relative positioning of competitors in an environment:

1. Canvas Strategy which compares the competitors based on their performance on key success factor to establish the extent of differentiation.
2. Blue Oceans which are new market space where competition is minimized and firms in the same industries are not into these activities and difficult for others to break down. These activities can help any firms to differentiate and minimize its cost, which make it achieve the best performance in its adopted supply chain management policy without pressure.

After a wide research in the information technology distribution industry and meeting business managers and operation managers of firms exists in the Middle East in the same field, the main critical success factors which could be specified are indicated as follows:

- Price and financial facilities
- Inventory (stock availability)
- Qualified sales force and IT consultants

- Customer service and support: pre- and post-sales
- Product variety and complete solution availability
- Marketing

4.1 Firm Capability

The organizations can't be identical but have different capabilities and it is difficult for one organization to copy the capabilities of another one. This will lead us to the concept "resource-based view (RBV)" which labelled sometimes as 'capabilities view'.

Johnson et al. (2014) identified four strategic capabilities fundamentals on a basis of competitive advantages which are important for superior economic performance. These fundamentals are:

1. Value of strategic capabilities: the researchers suggest that the strategic capabilities are valuable when they create a product or service that adds value to the customers. In our case, it is important for any distributor to provide a portfolio of products that help the resellers to provide the end users with the best IT solution in terms of hardware and software. It is also important to provide a valuable services before sales like designing BOQs, enablement sessions and providing the best solution for each inquiry in addition to services after sales such as implementation, training, financial facilities ….etc. but all these valuable activities need to be provided at a cost that still allows the organization to make the returns expected.
2. Rarity: The valuable capabilities may be common among all distributors so this will give advantage for the most agile organization which respond quickly, so the organization has to provide capabilities that are possessed uniquely by others and in this case, the company can adopt a lean policy but still can achieve a competitive advantage.
3. Inimitability: Having capabilities that are valuable to customers and rare are not enough but the organization has to find new capabilities that competitors find difficult and costly to imitate or substitute or obtain. This kind of capabilities in our case will be discussed by details in the case studies with examples. In this case and if a company has the ability to deliver this kind of capabilities, then it can adopt a lean management policy.
4. Organizational support: although it is important to have capabilities which are valuable, rare and difficult for competitors to imitate but the organization must be suitably organized to support these capabilities with appropriate processes, system, structure, formal and informal management control system, financial support and qualified manpower.

5 IT Distribution Industry Key Features

IT distribution contains two parts: physical distribution and delivering technical services. The former contains: order processing, customer service, inventory control, warehousing, transportation and material handling. The latter includes: education, designing solution, Prove of concept, and implementation. Each part has its own system which will be tested in this research to decide what is the best supply chain management policy should be adopted in this industry. This section highlights key features of IT physical products distribution.

5.1 Inventory

Inventory is one of the most expensive and important assets of many companies, in some cases representing more than half of the total invested capital. Managers have long recognized that good inventory control is critical. On the other hand, a firm can try to reduce costs by reducing on-hand inventory levels. On the other hand, customers become dissatisfied when frequent inventory outages, called stock outs, occur. Thus, companies must make the balance between low and high inventory levels. As one would expect, cost minimization is the major factor in achieving such a delicate balance.

The inventory is also one of the most important factors in distribution management. Inventory control and management can significantly affect lean and agile supply chain management. Inventory control encompasses storage, acquisition, handling and use of inventories to ensure availability of stocks whenever needed. Inventory management can provide adequate provisions for contingencies, and thereby deriving maximum economic use and minimizing of wastage and losses across supply chains. Inventory control therefore refers to a system, which ensures supply of required quantity and quality of stocks at the right time and preventing unnecessary investment in stocks in supply chain tiers.

Inventory can be reduced by improving demand forecasting, tightening supply, increasing flexibility of processes, persuading suppliers to adopt 'everyday low prices', moving towards a 'chase demand' plan in order to increase volume flexibility, reducing administration costs, investigating alternative delivery channels that reduce transport costs, reducing process time between customer request and dispatch of items and by reducing throughput time in the downstream supply chain.

5.2 Economic Order Quantity (EOQ) Model

Many operation managers prefer to hold little materials in stock waiting to be processed, the basis of this thinking is derived from Toyota Production System

(TPS) in order to minimize the waste. They use a tool called Economic Order Quantity (EOQ) for inventory management. This requires knowledge of: the cost of ordering, the cost of delivery, the cost of holding stock, the cost of not having the required materials in stock and the demand over a known time period.

There is a need of at least one individual's time to handle the direct cost, this requires telephone calls, order specifications, forms, etc.… Warehousing costs include items such as rent and rates, water charges, heating and cooling costs.

Holding too much stock can lead to loss if product goes beyond its use by date and could become outdates, superseded by later technology (IT products for example). Although investment in inventory could be shifted to the other areas, running out of inventory also creates costs and it can result in delaying orders to customers, idle equipment and employees that are costly. Therefore, the operation management should find the optimum 'trade-off' point for levels of inventory between holding and ordering costs.

The basic EOQ model makes the following assumptions:

- Demand is known and constant, the lead time is constant.
- Only one item is involved.
- Stock is mentioned on a continuous basis and an order is generated when the stock level reaches a re-order point.
- When an order arrives the stock level is replenished immediately
- Stock out do not happen,

The basic EOQ model is illustrated in the following diagram (Fig. 6):

For small values of Q (donate quantity), more frequent ordering will be necessary, thus ordering costs will be higher for the same volume purchased. Large quantities of Q will increase the quantity in stock, therefore increasing holding costs. The main issues are to find the value of Q that will minimize the sum of ordering and holding costs.

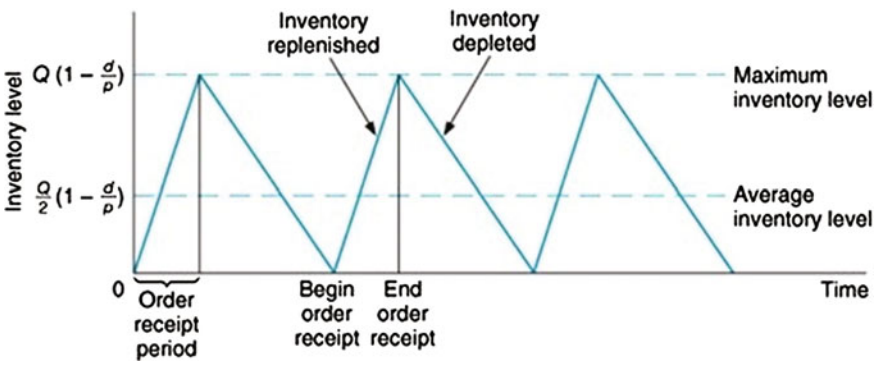


Fig. 6 EOQ model (simple order pattern model). Adapted from Harris (1915)

Cost of ordering: If we assume that the cost of placing an order is represented by C, then the total cost of an order is the number of orders made (over a fixed time period) multiplied by C. D is the demand over a specified time period, so the number of orders will be D/Q and the order cost is = C × (D/Q).

Cost of Storage: This is calculated on the basis that we know what it costs to store one item. This cost is represented by H. As the amount of stock carried will vary over time, then we calculate the average stock level, which represented in the above diagram by Q/2. So the storage cost can be represented by H × (Q/2).

There should be also some economy of scale affecting the cost or ordering above a certain amount.

The EOQ model's formula is represented as follows:

$$Q^{*} = \sqrt{\frac{2 \times \text{order cost per order} * \text{Demand}}{\text{Holding cost per unit}}} = \sqrt{\frac{2 \times C \times D}{H}} \qquad (1)$$

It is also important to place inventory orders at the right time. The timing of replenishment should reflect the effects of uncertain lead time and uncertain demand during the lead time. So safety stocks help to avoid stock-outs when demand and order lead time are uncertain. But if safety stock is set below the lower limit of the distribution then there will be a shortages every single replenishment cycle, and if it is above the upper limit of the distribution, there is no chance of stock-outs occurring.

The EOQ inventory model has been extended to fuzzy versions by Chen and Wang (1996), Yao et al. (2000), Chang (2004), Roy and Maiti (1997) and Park (1987).

5.3 *Product and Services Design Processes*

Processes design in distribution is very important as it can be judged in terms of their levels of quality (provide appropriate resources, error-free processing), speed (minimum throughput time, output rate appropriate for demand), dependability (provide dependable processes, reliable process output timing and volume), flexibility (provide resources with an appropriate range of capabilities, change easily between processing states) and cost (appropriate capacity to meet demand, eliminate process waste in terms of excess process capacity, in-process delays, in-process errors and inappropriate process inputs). They are designed to satisfy market needs, short customers waiting time, low in-process inventory, on-time deliveries of products and services, less disruption and confusion within the process, ability to process a wide range of products, low cost/fast product and service change, low cost/fast volume and timing changes, ability to cope with unexpected event such as supply or a processing failure, low processing costs, low resources costs (capital costs) and low delay/inventory costs (working capital costs).

When we talk about processes in information technology manufacturing-based distribution field we need to focus on two kinds of processes, the first is the process collaborate with delivering the required hardware to resellers which is a mix of front- and back-office activities. The front-office staff have some technical training and can advise resellers during the process of selling the products and back-office operations look after purchasing and administration. The resellers are buying standardized product but will be influenced by the full process. The second is the process of professional services which are high-variety, low-volume processes, where customers (resellers and end users) may spend a considerable time in the service process such as implementation of networking products or support after-sales. This is intended to be people-based rather than equipment-based, with an emphasis placed on the process (about what is delivered).

5.4 Logistics Services

As a physical distributors for IT hardware, moving products to resellers is important service provided by distributors. Some distributors are outsourcing their logistics services to 3rd party in order to save cost and deliver better service to their partners (resellers) (being lean and agile at the same time). We need to look at two levels, 'the haulage' and 'the storage'. Distributors bring both together by collecting the products, putting them into storage facilities and delivering them to resellers. This requires from distributors to plan properly about the warehouses they need to utilize (how many warehouses? which locations? Size of warehouse? How much to storage? How fast can deliver?), if these question are not answered correctly, then additional cost may be added or bad service can be delivered to resellers. The logistics services can increase the agility of a distributor by utilizing the internet that the information can be made available to the whole chain (transport company, warehouses, suppliers and customers) and it gives more potential for cost saving. Examples will be given about the distributors in the primary data collection section.

All distributors try to lean their warehouse, a research by APICS in 2007 shows that 70 % of organizations want to lean their warehouse because they want to service their customers better, 28 % of them want to lower their costs in the warehouse. Waste reduction in distributors' warehouses can be done by managing inventory well, implement lean processing, reduce waiting and improve transportation.

It is important that operation management recognize which activities add cost only and which add value in terms of storage, transport and time cost of money.

6 The New Concepts and Challenges of Operation Management

The importance of main resources and key capabilities for leanness and agility is highlighted and relevant methods which operation managers should adapt and utilise to structure a suitable policy for their organizations are described. However, operation management is more complicated than specifying some main topics which operation managers have to focus on, it is more in aligning with the whole organization strategy and work across functional lines to build experience for the customers that are hard to copy which can lead the company to be more confident about their future prospects.

From a recent global operation survey in 2015 by PWC Company (PwC Survey 2015). Under the title of 'reimagining operations" with insights from over 1200 operation leaders across various industries is found that:

- Knowing what customers value is a real and persistent challenge for operations executives and this create a challenges in setting priorities and managing the cost in strategic way.
- 61 % of the operation leaders expect that changes in customer behaviours will become a disruptive factor for their industry in the next 5 years. So the goal was to create an environment where keeping up with the customer does not become an overwhelming challenge.
- Operation itself being reimagined. Most of the companies realized that they need a model to align operations with strategy to help them face the continuous change and this will lead them to focus more on linked capabilities. According to PwC and results from the question of whether strategic companies are more confident and more likely to focus on a few differentiating capabilities, this research is focused on these capabilities and their role in assisting to decide over a SCM policy being lean or agile or integrated.
- Companies plan to do more than just improve existing processes. The majority of the companies see that continuous improvement of existing processes does not drive their operations. Instead the balance day-to-day process improvement goals with longer-term efforts to transform what operations is and what it delivers.

This idea of differentiation capabilities was tested with few companies (15 % of the survey pool). These companies focus on building a few differentiation capabilities to drive a competitive advantage and they are more confident to achieve their performance goals such as cost and revenue targets, providing a distinctive customer experience, driving strategy and adapting to change (PwC Survey 2015).

Since each company relies on a different set of capabilities based on its strategy or 'way to play', so the PwC sort the results of capabilities into four categories which are used in our case study:

1. Differentiation capabilities (Right to win): these what make the company what it is to deliver experience that customer value. This require Focus attention and staff, invest to reach best-in-class level and aim for quality, innovation, productivity.
2. Competitive necessities (Right to compete): Required in a given sector or what is necessary for an organization in an industry to deliver in order to compete with its counterparts in the market. This requires increase efficiency, reduce cost and maintain the basic quality.
3. Basic business capabilities: these are the capabilities which any company in industry should has in order to survive 'keep the lights on' and this require an aim to spend less than competitors, outsource when possible and increase efficiency.
4. Other activities: These do not contribute value or not relevant to current strategy.

7 Background of the Case Study

Distributors: Five main distributors are selected, which are based in the Middle East, as a part of global organizations specialized in distributing IT manufacturing-based products and services. The 5 distributors are: Westcon ME, Redington Gulf, Logicom, Aptec and Star Link. The criteria used to select the 5 distributors was based on the annual turnover, distributing products and services to the markets in the main Middle East countries (GCC and Levant countries) and they hold similar or same products in their portfolio and provide same services to their shared customers. Table 1 presents the background of each distributor which selected.

Resellers (*customers*): 10 resellers were chosen for gathering data by interview. It should be noted that the resellers (customers) participated in this research requested not to mention their organizations' names. Hence, we indicate them by #1–#10. These resellers are shared between the five mentioned distributors and were selected based on distributors' business manager advice. The aim from interview with sellers is to understand what really matters for these resellers when it comes to their relation and expectations from the distributors to add value for their businesses and how they classify and rank the services provided by these each distributor.

8 Research Methodology

In this research, a case study is adopted in the IT manufacturing-based distribution industry in Middle East. It will be a descriptive a case study by describing current practice of specific companies by interviewing the operation managers and business managers.

Table 1 Background to the selected companies. *Source* websites of the mentioned companies

Distributor	Background
Westcon ME	Westcon Middle East is a leading value-add distributor of convergence, security, networking and mobility products and services, covering the Middle East, Pakistan and North Africa regions. Their highly qualified staff deliver outstanding support and unmatched relationships to their vendors and channel partners, including technical expertise, network design, sales consultancy, logistics and integrated marketing as well as availability of inventory of products for immediate deliveries Annual turnover = over 4 billion USD Ref. http://www.westcongroup.com/
Redington Gulf	Redington Gulf provides end-to-end supply chain solutions for all categories of Information Technology products (PCs, PC building blocks, networking, software and enterprise solution products) and Consumer and Lifestyle products (Telecom, Digital Lifestyle products, Entertainment products and Digital Printing Machines) to over 100 international brands. Redington Gulf provides the following core services: Distribution Services-Volume, Value and Telecom Distribution, Support services, and Logistics services Annual turnover = over 2 billion USD Ref. http://www.redingtonmea.com/
StarLink	StarLink is a leading IT compliance and next-generation threat driven solutions provider, recognized as a "Trusted Security Advisor", a "True Value Added Distributor" and a market leader by more than 1000 customers to secure critical enterprise assets Annual Turnover = 100 M USD Ref. http://www.starlinkme.net/
Logicom	Logicom is a leading regional Distributor of Technology Solutions and Services covering a wide area in Europe, Middle East and North Africa Annual Turnover = 631 m Euro Ref. http://www.logicomdistribution.net/EN/Pages/Home.aspx
Aptec	Aptec is a leading technology distributor with a wide network of resellers acting as a one stop shop of IT solutions for businesses. Aptec is the authorized distributor for most of the leading IT hardware, software and communications manufacturers in the world. The company has operations in 5 countries from which it serves over 70 countries in the region. Aptec, covers the region of Middle East, Africa, Near East and Turkey. Aptec distributes a wide range of Value Added solutions and products covering Computers, Data Centre, Storage, Security, Networking, Software, Hardware, Services and Telecommunication products from the world leading vendors in each segment Annual turnover = 250 M USD Ref. http://www.aptecme.com/

Core research questions are:

What is the best supply chain policy should be adopted by information technology manufacturing-based distributor?

Which activities must be lean? Which activities must be agile? Which activities must integrate both policies (leagile)? in information technology manufacturing-based distribution industry.

The research hypotheses are as follows
According to the reviewed literature, this study forms X hypothesis about the best supply chain policy should be adopted in each main activity in information technology manufacturing-based distributor:

H1 Designed order processing in physical distribution part should be lean to guarantee efficiency and reduce time waste.

H2 Logistics activities including warehousing and transportation should be lean to avoid waste and guarantee delivery in time.

H3 Stocking for products should be lean and agile at the same time based on the products type, lead time, and demand to reduce cost and fulfil customers need fast and in-time.

H4 Professional services should be lean and agile at the same time by linking the existing capabilities with cost centres to reduce cost and monitor well in addition to deliver the services in flexible way based on customers requirement and unpredictable changes in technologies.

H5 Customer services including information flow between customers and front-office staff and between front-office staff and back-office staff should be agile for fast reaction and increase customer satisfaction.

Methods of data collection: Qualitative data were collected by survey and open questions interviews. One part of the data was based on conducting a survey with top 10 mutual resellers to determine the critical success factors of distributors. That built the foundation of following qualitative data collection through interviews with the selected companies. Based on the answers of the top 10 resellers, specific questions were designed to be asked of business and operation managers of the companies.

Open interview questions were conducted with operation managers and business managers of 5 main companies operating in IT industry in the Middle East. The data is collected directly by one of the researchers and is gathered directly from the sources, thus ensured its credibility and it is trustworthy and applicable. Table 2 shows the designed interview questions for both resellers and distributors.

Methods of data analysis: A general analytical procedure is applied to analyze data by following some steps such as data reduction by coding it to summarize and simplify the data collected and discarding irrelevant data. Then will display the data to draw a valid conclusion. Qualitative data analysis (QDA) software is used to manage the analysis of the large amount of qualitative data, the following steps were followed while using the QDA software based on Dembowski and Hammer-Lloyd (1995): importing and sorting text, coding the data, searching and retrieving text segments, stimulating interaction with the data, relationship building within the data.

By using QDA software called “Atlas”, the collected data were coded based on the main answers which were collected during the interviews with customers,

Table 2 Interview questions for resellers and distributors

Interview questions	Resellers (costumers)	Distributors	
		Business managers	Operations managers
Q1	What are the main added-value activities your company expected to be provided by your suppliers (IT distributors)?	What are the critical success factors from customer's point of view? In other words; What makes your customer satisfied? Achieve customers need?	What is your order processing model?
Q2	Are you satisfied with of the following services by each distributor? – Stock availability – Fast order processing – Fast delivery – Accurate updates/information about your orders status – Professional technical team for pre-sales and post-sales technical services – Fast reaction on unexpected changes Flexibility in financial services	What are the main challenges and barriers to achieve customers' needs?	How do you decide the stock levels of hardware, and how do you manage the inventory?
Q3		How do you cope with these challenges?	How do you manage logistics activities in distribution business such as warehousing and transportation?

business managers, and operation managers. Table 3 shows the generated codes and sub-codes.

9 Data Findings and Analysis

9.1 Resellers (Customers)

Two questions were asked from the executive of resellers companies. This section highlights these questions and the answers. For confidentiality, the resellers companies are named from #1 to #10. The interviews with resellers helped find out the

Table 3 Generated cods and sub codes

Generated codes and sub-codes	Customers' satisfaction	Stock availability
		Technical support
		Visibility
		Financial added-value services
	Capabilities and resources	People
		Process
		Support resources
	Inventory	Type of products
		Decrease lead time
	Order processing	
	Logistics	Warehousing
		Transportation
	Professional services	Pre-sales technical activities
		Post-sales technical activities

Table 4 Resellers' responses to Q1

Responses to the Q1: critical factors	Number of positive responses from 10
Having qualified technical team	9 out of 10
Fast delivery	8 out of 10
Fast updates about our orders status	8 out of 10
Stock availability	6 out of 10
Credit facilities	5 out of 10
Flexibility in payment collection	3 out of 10
Fast reaction from sales and customer services team	3 out of 10
Best price	3 out of 10
Designing correct BOQs	2 out of 10

critical success factors in this industry and get results of one main pillar of our research with is customer service part, then link it with the activities by distributors. The resellers' interviews also helped to form the questions that have been asked from distributors' operation managers and business managers to get the best answers for the research question. Table 4 presents the answers of the resellers regarding Q1.

The next question to resellers was based on intensity rating scale in order to measure their opinions about the best activities which provided by each distributor. That will help to determine the critical success factors for distributors in the mentioned industry and helped to form the main questions for distributors during the interview.

A scale from 1 to 10 was used where (10 = Strongly Satisfied, 1 = Not Satisfied). The following question where asked to each reseller about each 5 distributor companies.

Table 5 Result of Q2 for resellers

Distributor	*Stock Availability & Delivery Time*	*Sharing updates*	*Technical Service*	*Fast reaction*	*Flexible credit facilities*	*Pricing and Promotions*
Westcon	5.5	7	8.1	6.6	7.2	7
Redington	5.9	6.3	7	6.1	6.3	7
StarLink	7.2	6.2	4.9	6.1	5.6	6.7
Logicom	7.2	6.3	5.2	6.4	5.8	6.7
Aptec	7.4	5.5	4.9	5.4	5.3	6

Each reseller ranked the 5 distributers with respect to the services i.e. critical success factors (CSFs) mentioned above. The values were accumulated to highlight the comparative rank of each distributer with respect to the services. Table 5 presents the median of each activity valued by resellers for each distributor company.

Figure 7 illustrates the critical success factors for distributors based on resellers' (customers) view.

These results of CSFs and the relation between this data and lean supply chain and agility supply chain will be discussed further in this section.

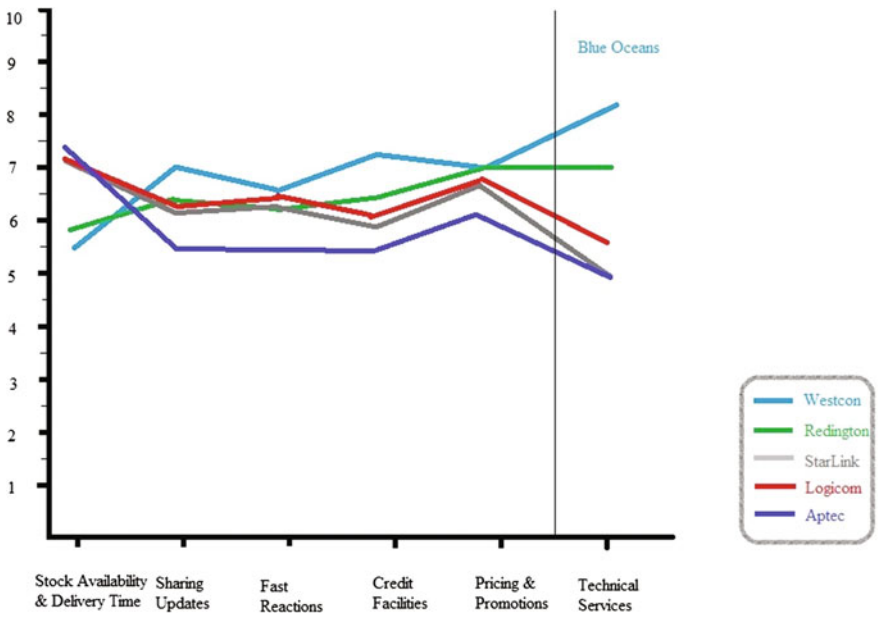


Fig. 7 Critical success factors and 'Blue Oceans' of the 5 distributors (based on the survey results)

9.2 Distributing Companies

Business managers are key decision makers in IT manufacturing-based distribution industry. Business managers in this industry handle a category of products in the production range and set the production plans and responsible on their team performance to execute. Business managers need to be in touch with customers to grow the business and deliver what is expected. They focus on the needs of customers in each market segment and need to be in touch with operation managers inside their organization to execute with proper plan based on the overall company's objectives and strategies. Thus, their involvement plays a major role in deciding the best supply chain policy that include many activities such as inventory levels, order processing, professional services and customer service activities.

This section examines the 5 companies' business and operation managers who were participated in this study. As indicated in Table 3, the data collected were coded based on the participants' responses to the questions they were asked during the interviews.

Table 6 presents the generated codes/sub-codes and their related responses from the companies managers.

Customers' satisfaction The following activities were discovered during data analysis process which add value to customers from both customers and distributors point of view:

- Stock availability: customers (resellers) always prefer to find the items they ask for to be available locally in distributor's warehouse that they can deliver fast to their customers from their end and increase the revenue by shorten the lead time.
- Technical support: The is a key area in this industry, the customers look for professional teams from distributor's side to design the right solutions as fast as possible that they can provide their end customers with it. In other words, resellers utilize the distributor's technical resources to get the best solutions in products that they may have poor experience or lack of technical qualified resources from their end. Education and enablement sessions from distributors are added-value activities that can help resellers to increase their focus on X product and increase the revenue and technical knowledge. Post-sales activities such as implementation are also important for resellers in case they have limited resources in this area for specific products.
- Visibility: Since the resellers are also intermediates in this supply chain, they look to get fast updates from distributor side on their order process status.
- Financial added-value services: Resellers look for major financial added-value services from distributors such as good credit facilities, good prices, promotions, discounts and marketing to compete in the market and increase their profit.

Table 6 Generated codes/sub-codes with the example of responses

Generated codes and sub-codes	Example of responses from the companies' business and operation managers
Customers' satisfaction	
Stock availability	"Customers want us to have stock, deliver fast, and ensure that our technical solutions are correct, fast response from our customer services team about their orders status, flexibility in payment terms" (Redington Company)
Technical support	"We try to increase the data and information flow between our sales team and customers, and between our departments internally" (StarLink Company)
Visibility	"We need to have visibility on the product life cycle by having visibility on the EOL announcements by each vendor to get sure not to order specific items which will have replacement in the near future" (Westcon Company)
Financial added-value services	"The difference we make is the service we offer, the credit we offer, the price we offer and the overall support we can give them" (Aptec Company)
Capabilities and resources	
People	"We focus on developing the resources we have from people to stock levels, we allocate each resource to a cost centre, and this will help us to manage the outcome of all product" (Logicom Company)
Process	"Our main focus is to plan properly for stock levels and fast order processing, sometimes it is difficult to process fast but we try to increase the data and information flow between our sales team and customers, and between our departments internally StarLink Company)
Support resources	"Westcon group focus on core value-add activities to its partners such as sales, business planning and development, education, technical services,…etc. This created a better performance in many areas by implementing high level operating model, evaluation of shared services model" (Westcon Company)
Inventory	
Type of products	"We have decided recently to keep stock for the product with high demand in the market and which we can predict the sell-out (Westcon Company)

(continued)

Table 6 (continued)

Generated codes and sub-codes	Example of responses from the companies' business and operation managers
Decrease lead time	"We have to follow certain procedures when we close any deal or order, this may cause a delay, but we try to plan previously on the stock levels to reduce the lead time" (Redington Company)
Order processing	
"Our main focus is to plan properly for stock levels and fast order processing, sometimes it is difficult to process fast but we try to increase the data and information flow between our sales team and customers, and between our departments internally" (StarLink Company)	
Logistics	
Warehousing	"We recently converted the formerly paper-based warehouse into an electronic one, installing the Exactas Aware warehouse management system from Dubai-based, Business Systems Group" (Aptec Company)
Transportation	"We realize that transportation is a necessary activity but it does not add value, thus we use well known 3rd party carriers who have experience in delivering fast in the best way possible" (StarLink Company)
Professional services	
Pre-sales technical activities	"Each category has a team of sales and pre-sales to deliver the required service for customers, the company will take the sum of all returns of categories to measure the overall performance" (Westcon Company)
Post-sales technical activities	"These engineers must be fast and efficient in designing bill of materials, make successful enablement sessions and post-sales activities" (Redington Company)

Capabilities and Resources Distributors focus on developing their resources and capabilities in a way that can reduce cost and deliver best and agile services to their customers, the following sub-categories were discovered during the data analysis process:

- People: Distributors have a major role in developing their employees. Two types of people in I.T. distribution industry were noticed during the data analysis; 1-Sales and technical staff, both teams face the customers and they must deliver

the best services such as engagement, follow up, provide enablement and education sessions, provide the best professional services, and understand the internal processes and strategies. 2-back-office staff like operations team, finance team, and logistics team who need to be fast and accurate in many areas such as inbound and outbound order processes, credit facilities provided to customers, and warehousing.

Allocation these resources to profit centres is key for right controlling and monitoring the results of each resource to avoid any unnecessary waste and cost.

- Process: As noticed from the data collected, process management is one of the most important areas in distribution industry, all interviewed distributors keep developing their processes to reach the best outcomes and increase agility within a lean process.
- Support resources: Such as education centres as we see in Westcon case or warehouses.

Inventory Inventory in distribution business includes the stock they hold in their warehouses and how do they manage to sell-out in short period to avoid any additional cost, increase revenue, and satisfy customers at the same time. As noticed from the data collected that all distributors try to minimize the stock they hold, but for business purposes, they follow some strategies based on two main factors:

- Type of products: I.T. distributors increase the stock level for innovative products which has a short product life cycle especially during the growth and maturity stages, they reduce the stock levels during the decline stage. This is based on the market demand levels where they follow push strategy to sell-out as much as possible during the high demand periods.
- Decrease lead time: This needs proper plans and coordination between business managers and vendors from one side and business managers and internal operation management from another side to increase the inventory levels for functional products based on the history and forecast.

Both strategies include high involvement and focus from sales staff and operation staff to execute based on the plans.

Order processing Concerns with reducing time waste. It is linked directly with resources such as people, system, and support resources. As notices from the collected data, some distributors have outsourced their order processing to gain the best outcomes in this regards that they can focus on core areas such as sales and professional services. Other distributors use their own resources and try to develop the model to reach the best way of order processes by improving the system they use and do frequent training for all employees involve in the process.

Logistics This includes the warehousing and transportation.

- Warehousing: As noticed, all distributors establish warehouses in one or two main cities to reduce their cost, they also try to find the best model to lean their warehouse process by standardizing the work and implement a lean thinking in the daily routine.
- Transportation: Most distributors as seen in the collected data use an external carrier that can do the job in the best quality way. One other distributor prefer to focus on this activity to reduce cost but as we discovered, this affect other core activities such as sales and professional services.

Sustainability Lean or agile SCM helps to restructure the entire distribution set up to achieve higher service levels and lower inventory and lower supply chain costs, particularly if it is coupled with IT technologies. The broad strategic directions which need to be supported by a supply chain strategy are an increase in the frequency of receipts/dispatch, holding materials further up the supply chain and reducing substantially the various lead times across the supply chain tiers. As a result, IT based lean and agile creates opportunities for manufacturing and related business firms in the supply network to gain global competitive advantage while enhancing sustainability.

Professional Services This code was created due to its importance in this industry, this is a key factor to add value for customers and increase revenue and profit for distributors. We see many activities related to professional service:

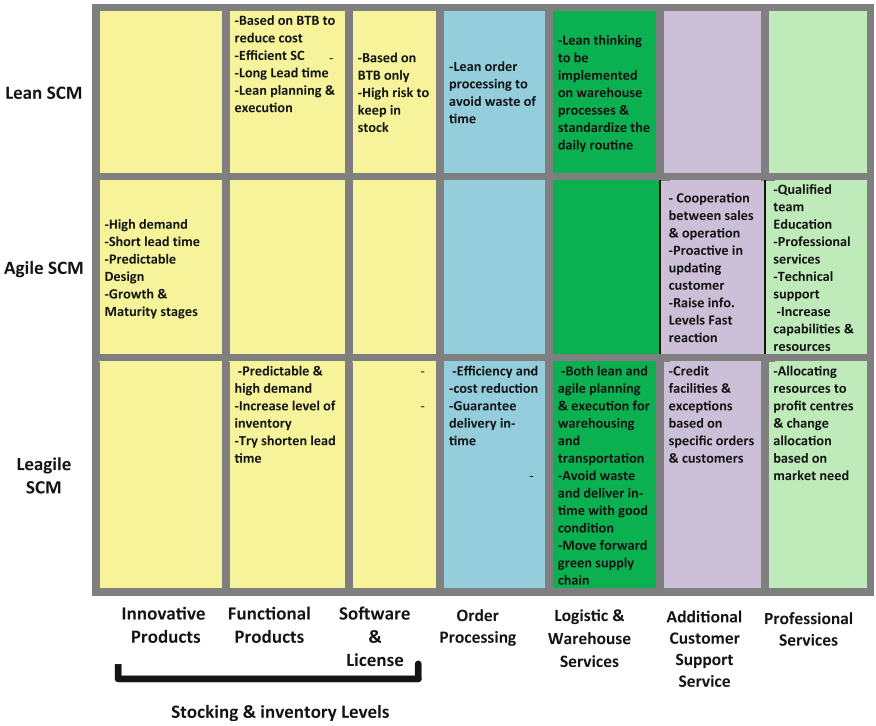
- Pre-Sales technical activities: Such as technical education for customers, design bill of materials and I.T. solutions, Proof-of-Concepts with end users.
- Post-sales technical activities: Such as implementations and support contracts and services for the sold products.

The professional services need to be managed in proper way by assigning the engineers to a category of products and allocating them to profit centres for control and monitor purposes. These services can add great value for both customers and distributors.

Table 7 illustrates the relationship between the data based on the literature review and the collected qualitative data from one side, and supply chain policies from another side:

Recalling from Table 7, the SCM strategies for IT distributers can be summarised as follows: Lean SCM can significantly help achieving efficiency and cost reduction and moving towards sustainable green supply chain. Agile SCM can significantly help achieving responsiveness to high demand in a short lead time that helps maturity and growth of the distributers. Leagile SCM as the hybrid lean-agile SCM can support achieving of both benefits of applying lean and agile SCM strategies. Leagile could guarantee delivery in-time with simultaneous planning and execution in warehousing and transportation. This will help avoid waste and deliver in-time with good condition that will shift the distribution toward a greener supply chain.

Table 7 Relationship between collected data and supply chain policies



10 Conclusion

By reviewing the literature and analysing the qualitative data collected, we found relations between the variables and the activities, which are impacted directly by the lean and agile supply chain strategies adopted by the distributors under study.

The distributors try to avoid any waste which caused by too much time to perform a process or an activity and too much inventory spread across the supply chain. They focus on value adding activities which is delivering materials and service into what customer willing to pay for such as professional services. They can reduce the non-value adding activities which add no value but necessary to complete the process by outsourcing.

Lean supply chain can be implemented in the best way in the distribution business by following pull strategies which means that no upstream activities occurs unless requested by downstream activities, the action taken should be in direct response to request, keep optimizing the processes to be perfect, effective and

functional as possible, and avoid wasteful duplication of efforts in procedures, policies, processes, documents and processes.

The distributors need to review all the activities in order to reach the best lean management, for example, they need to check the order processes if it takes too long to reach customers and get sure not to ship wrong products or quantities to wrong locations. The activities related to holding materials need to be developed such as the right inventory strategy such as Just-in-time. The processes of receiving inbound materials like advance ship notices, supplier communication, product marking and labelling. From business point of view, distributors need to determine the return of investment by reducing labour and operating costs, better utilization of resources such as engineers, increase customer satisfaction, and increase sales without increasing staff.

On the other hand, agility can be applied mainly in the information flow between departments and between sales and customers and between business managers and vendors. This can help to increase the flexibility and respond fast to market changes. Stocking can be agile if there are proper plans, control and monitoring system by increasing inventory levels of high demand products and sell it out in short period. Having a qualified engineers who can be agile in designing I.T. solutions and wo know the latest updates about the latest technologies of their products to educate and support their customers can increase agility.

The research has some limitation as follows:

- The research does not take into consideration the compliance part which may cause delay in order processing and just-in-time delivery, and may reduce the customer satisfaction. (Some products are subjected to US export compliance law where more documents are required to be submitted with vendor for specific sensitive accounts in order to have permission using the vendors' restricted products.)
- The research does not mention the effect in case same brand is handled by several distributors in their portfolio, which may affect the decision of one distributor to increase the agility for competitive advantage purposes.
- The research does not take into consideration the marketing campaigns role in increasing the agility as a service.
- The research does not focus on the region differentiation since this kind of business is related directly to global strategies.

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Lean Thinking in Non-profit Organizations

Ivo Domingues and José Cunha Machado

Abstract Non-profit organizations are constrained by their institutional environment to adopt management models based both on quality certification and on principles of lean thinking. This research analyses the effects of organizational change based on two resources that rationalize organizational management: a quality standard and a software platform. The first resource provides a set of requirements, based on which the quality management system is built. The second resource provides the information/communication technology that provides the infrastructure for a quality management system. In theory, these resources should increase efficiency and stimulate institutional isomorphism. In reality, the consequences of this change process are not only the improvement of overall organizational performance but also increased intra-organizational and inter-organizational heterogeneity and the emergence of organizational paradoxes.

1 Introduction

Theory has addressed lean as both a philosophical and a practical orientation. Although it is a philosophy, not a set of management tools (Woomack and Jones 1996; Bhasin and Burcher 2006; Liker 2004: 71–84), it can also be regarded as having both a philosophical and a practical orientation (Shah and Ward 2007). *Lean thinking* is an approach to strategic and continuous lean production (Pettersen 2009: 133) performed at the strategic level, whereas *lean production* is processed at the operational level (Hines et al. 2004: 1007). In this research, we will adopt the perspective of lean as philosophy. More concretely, we will adopt lean principles as guides for managing social-sector organizations. Thus, we will analyse the impact of the implementation of lean principles in the studied organizations' strategic and operational principles.

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Lean thinking is a notion that emphasizes management's global and generous nature. Indeed, lean thinking is more than a system: it provides a managerial perspective. It is a way to do more and more (value aggregation) with less and less (less human effort, less equipment, less time, and less space), transforming waste into value (Woomack and Jones 1996: 15), creating a repository of methods (Thirkell and Ashman 2014: 2959), and collecting methodologies and approaches (Marr and Creelman 2011: 43). Moreover, the focus of lean implementation is the creation and underpinning of competitive advantages (Hines et al. 2004: 998; Lewis 2000). In this sense, lean thinking means a set of principles or normative drivers for the managerial activity that focuses on organizational efficiency.

The nature of non-profit organizations tends to devalue the strength of this focus on competitiveness. Typologically, non-profit organizations reside between the for-profit sector and the public sector, thus entailing certain characteristics and functions. Non-profit organizations have various characteristics: they have distinctive needs related to their mission, results, resources, and change (Drucker 1990: xv) because their operations are not based on the profit motive (Courtney 2002: 46); their driving force is to make good, not to serve commercial interests (Herzlinger 1999: 40). However, their sustainability depends upon the maximization of their resources and capabilities, and they not only compete for resources with other non-profit organizations (Courtney 2002: 155) but also build alliances with for-profit organizations (Andreasen 1999: 114). The literature shows that non-profit organizations' strategies are, according to their formulation and content, sensitive not only to the constraints provoked by funding entities but also to the funding conditions of the external environment (Stone et al. 1999). Therefore, non-profit organizations compete both amongst themselves and with other organizations to obtain and maximize their resources (Courtney 2002: 155). The studied organizations decided to certify their quality management system in an organizational environment characterized by a changing institutional discourse produced by the public entity that funds their activity. Concretely, the discourse adopted a double criterion—quality performance and differentiating funding based on performance—that provides the basis for calculating funding. Thus, the decision to certify the management system was made in an environment of progressive competition for public resources.

This research focuses on non-profit social-service organizations. Although the juridical nature of these organizations varies, they share some fundamental features: (1) their management system is private; (2) their funding system is both public and private; and (3) their quality management system is certified and works on a software platform. The quality standard model, which is known as Equass ('European Quality in Social Services'), is a normative resource, whereas the software platform, which is known as Quality Alive, is a technical resource. The first resource defines a set of principles, criteria and indicators that allows for the normative setting of service provision, whereas the second resource provides a quality management model that is based both on the value chain concept and on the integration of quality processes, thus both satisfying the Equass structure and

overcoming its requirements because the model also adopts lean principles. These resources are of a normative and technological nature and have a common characteristic: the ability to control processes, practices and people. This last feature must be underlined because it provides the empirical basis for this research.

The theoretical approach is based on a framework that is built across various theoretical sources. It is based on lean thinking principles and on the sociological theory of organizations. More concretely, the theoretical analysis is based on institutional theory, from which we borrow the concepts of isomorphism and legitimacy; the organized anarchy model, from which we borrow the loosely coupled concept; and the concept of organizational paradox. This reflection has the following goals: (i) to determine the impact of certification on organizational efficiency; (ii) to relate this impact to both normative and technical resources; and (iii) to characterize the impacts of certification on efficiency.

2 Lean Thinking Principles

2.1 The Scope of Lean Thinking

The lean organization is based on the following principles or basic assumptions: value (capability provided to a customer at the right time at an appropriate price, as defined by the customer), value stream (the activities that add value to the product), flow (the progressive achievement of tasks that add value), pull (the downstream signalling of upstream production activities) and perfection (the complete elimination of waste) (Woomack and Jones 1996: 15–28; 306–311); waste elimination; continuous improvement; just-in-time production with zero defects; pull system production; multifunctional teams; decentralized responsibilities; integrated functions; horizontal and vertical information (Karlsson and Åhlström 1996); management decisions guided by a long-term philosophy; problem detection in the process flow; pull system production; a balanced workload; a quality culture oriented towards efficiency; continuous improvement; employee empowerment; visual control; reliable technology (Liker 2004: 85–168); relationship with suppliers, relationship with customers, just-in-time production, continuous improvement, team work and group problem solving (Delbridge et al. 1992: 23–28); and standardization, discipline and control, team work, participation and empowerment, multiskilling and adaptability, common values, compensation and rewards, and continuing training and learning (Olivella et al. 2008: 800–807). Thus, lean organizations are based on a set of principles that provide practical and normative support to management. Thus, many authors have suggested that lean's universality lies in its principles, not in its tools and methods (Hines et al. 2004). In this research, lean principles are adopted as normative criteria for the analysis of the organizational performance. We use the term lean production in the sense of the practical application of lean thinking principles.

Broadly speaking, lean thinking invites one to regard the organization as a system. One of the lean production model's primary sources of strength is its success in integrating the various parts of the business organization based on a set of common principles (Meer and Gudim 1996: 131). It is an element of the value stream running from the suppliers to the customers (Pettersen 2009: 134: 134–135) because a lean organization focuses on the entire value channel, specifies the value for the customers and identifies all of the actions that add value for the customers (Woomack and Jones 1996: 276). Much of the existing literature emphasizes lean's system aspect, arguing that the entire system must be implemented to realize lean's benefits (Bicheno 2004; Liker 2004). In this sense, lean is often presented as a philosophy instead of a set of improvement tools (Bhasin and Burcher 2006; Liker 2004; Womack and Jones 2003). This research adopts the systemic conception of lean for its analysis of organizational performance.

Lean thinking has been implemented in the services sector: its principles can be applied in the service sector (Bowen and Youngdahl 1998) and it has been applied in public services (Pietro et al. 2013a, b), local government (Barraza et al. 2009; Furterer and Elshennawy 2005), healthcare (Radnor et al. 2006; Souza 2009; Poksinska et al. 2013), higher education (Thirkell and Ashman 2014) and non-profit organizations (Cheng and Chang 2012). Thus, in addition to manufacturing, lean thinking has been applied in a wide range of services. Thus, our study is aligned with the trend of analysing the lean model as an empirical object in the service sector.

2.2 The Principles of Lean Thinking

2.2.1 Value-Chain-Based Management

A lean organization focuses on the entire value channel, specifies the value for the customers and identifies all the actions that add value for the customers (Woomack and Jones 1996: 276); defines value in terms of the entire product; and continually rethinks the value question to improve product development, order-taking, and production activities (Woomack and Jones 1996: 32, 34–35). Value is a preferred combination of benefits (value drivers) compared to acquisition costs (costs drivers) (Walters and Lancaster 1999a, b: 643); a lean organization determines how value is identified and explicitly determines the assets and core competencies needed to produce, communicate and deliver value (Walters and Lancaster 2000: 178). Lean production means cost reduction through removing wasteful activities, and enhancing value for customers by adding service characteristics (Hines et al. 2004: 995). Thus, an optimal value-chain produces and provides the product to customers in the context of a positive cost/benefit relationship, absorbing lean principles. Indeed, customer-centric thinking regards customers' problems through customers' eyes (Slywotzky and Morrison 1997: 18). This means that the value chain is based on customer needs. In this study, organizations' key processes are focused on the capacities of disabled people.

2.2.2 Waste Elimination-Based Management

Lean production requires the identification and elimination of waste associated with overproduction, waste of time on hand (waiting), waste in transporting, waste of processing, waste of stock on hand (inventory), waste of movement and waste associated with making defective products (Ohno 1988: 19–20), all of which consume resources without adding value (Woomack and Jones 1996: 49, 308). Indeed, the purpose of lean production is to eliminate waste from the value chain (Pettersen 2009: 134), from product development to product delivery (Bowen and Youngdahl 1998: 213). Thus, management based on waste elimination focuses on the value that is added by processes and activities that are included in the value chain.

2.2.3 Pull Production

Pull production means the explicit limitation of the amount of work in process that can be placed in the system, and, by default, push production means that the amount of work in process has no limitation (Hopp and Spearman 2004: 142–143). Lean production emphasizes customer pull instead of organizational push (Lewis 2000: 963), meaning that the pull system reduces activity to the amount of production ordered (Åhlström and Karlsson 1996: 44–45) and increases customer focus and involvement in the product development and delivery processes (Bowen and Youngdahl 1998: 213). This system creates a production process with continuous flow that is animated by the pull system (Janoski 2015: 89), which is both transparent and easy understandable (Riezebos et al. 2009: 238–39). Therefore, pull system management focuses on customers' needs and waste reduction along the production process. Applying this principle to social services, it implies consideration of modelling and providing food, hygiene, medical and training processes to clients.

2.2.4 Just-In-Time Production with Zero Non-conformities

The main focus of lean production is just-in-time, not quality, because it is concerned with decreasing total costs and highlighting problems (Pettersen 2009: 134). Just-in-time is a system for producing and delivering the right items at the right time in the right amounts and its key elements are flow, pull, standard work and time taken (Woomack and Jones 1996: 307). In addition, it maintains routine work, increases workload and stimulates the acceleration of work (Gorgeu and Mathieu 2005: 101). Thus, just-in-time emphasizes teamwork (Sewell and Wilkinson 1992: 281, 285), mutual control and mutual support (Olivella et al. 2008: 803). Consequently, this principle implies focusing on customers' needs. Applying this principle to social services, it implies providing food, health, hygiene and training processes in accordance with clients' identified needs and considering the adequacy of the tasks' nature, extent, and time.

2.2.5 Standardization, Discipline and Control

Standardization includes both the sequential routine and the content of operations (Monden 2012: 15–16). By standardizing the work, the execution of tasks becomes both controllable and efficient (Niepce and Molleman 1996: 86, 89), which is promoted by peer surveillance and social control inasmuch it facilitates compliance with standards (Winfield 1994: 51). Consequently, standardization is necessary both to support just-in-time operation (Rinehart et al. 1997: 26; Robertson et al. 1992: 87) and to control the work process. Thus, standardization is an unavoidable condition of organizational efficiency. Applying this principle to social service organizations' quality system management implies consideration of the degree of conformity of both processes and practices.

2.2.6 A Quality Culture Oriented Towards Efficiency

Lean production implies changing a set of the corporate culture's requirements, embedding new cultural factors related to empowerment and sponsoring lean principles throughout the value chain (Bhasin and Burcher 2006: 58–59, 67). It requires an organizational culture oriented towards proactive work in reducing waste and helping each partner (internal and/or external partners) (Dahlgaard and Dahlgaard-Park 2006: 274). Human resources are regarded as a unified community with a strong cultural identity (Forza 1996: 43) and require both vocational training and technical information to sustain the occupational culture, which is characterized by a functional understanding and knowledge of both product and process (Berggren 1995: 278). Therefore, lean production requires a supportive operational culture that guides people's conduct. Thinking about quality culture oriented towards organizational efficiency in social services means considering the meanings attributed to the operational processes by referencing the efficiency criterion.

2.2.7 Continuous Improvement

The idea of continuous improvement is central to lean production (Pettersen 2009: 129), which must be guided by a monitoring process and assessed with reference to strategic goals (Bessant and Francis 1999). This continuous improvement is oriented towards the elimination of non-value-added labour and the reinforcement of standardization (Rinehart et al. 1997: 26; Robertson et al. 1992a: 87). Moreover, the assumption of its viewpoint is essential to implementing lean production (Bhasin and Burcher 2006: 67). It allows for the reinforcement of standard procedures (Imai 1986: 75) and the increasing of operational-positive convergences that are motivated by surveillance (Sewell and Wilkinson 1992: 284). Thus, continuous improvement is an essential process that contributes to organizational efficiency. Applying this principle to social services it involves both the nature of and motivation for waste reduction.

2.2.8 Increasing of Employees' Empowerment

Empowerment is a multidimensional construct that encompasses leadership oriented towards the sharing of a vision and common goals, collaborative working arrangements, job autonomy and personal responsibility, decentralized structures and a contingent rewards system (Honold 1997: 210). It is based on autonomy to manage the production flow, to cooperate on the resolution of problems and to adapt to variations in job duties and work flow (Forza 1996: 46). It means increasing responsibilities and abilities (Vidal 2007: 248), information access and the analytical skill to make decisions (Bidanda et al. 2005: 518; Recht and Wilderom 1998: 20), and the empowering of workers and teams (Bowen and Youngdahl 1998: 213). Therefore, production relations are defined by empowerment, whose usefulness depends on the degree to which empowered practices are embedded. Consequently, applying this principle to social sector signifies consideration of the autonomy related to daily operational decisions on processes' performance.

2.2.9 Teamwork and Flexible/Multiskilled Teams

Lean production benefits from multifunctional teams, which receive diverse tasks, decentralized responsibilities, integrated functions and vertical and horizontal information (Åhlström and Karlsson 1996: 36–39). It facilitates task diversification, rotation and flexibility (Sánchez and Pérez 2001: 1436–1437), reducing the hierarchical levels in an organization (Karlsson and Åhlström 1996: 36). Thus, teamwork requires increased competence and knowledge sharing (Womack et al. 1990: 113–115). In the lean production system, the remuneration system must consider the elimination of waste and continuous improvement, employees' functional flexibility, zero defects, and the pulling system; thus, it remunerates quality, productivity and time accuracy (Karlsson and Åhlström 1995: 82, 94). The variable aspect of the rewards can be based on individual skills (Murray and Gerhart 1998), on individual, team and organizational performance (Bidanda et al. 2005: 514), and on suggestion behaviour and the impact of any implemented suggestions (Bessant and Francis 1999: 1114–1115). Consequently, both flexibility and multiskilling are fundamental to organizational efficiency, and the payment policy reinforces these workforce characteristics. When this principle is applied to the social sector, it demands the analysis of both personnel capacity and payment practices.

2.2.10 Continuing Training and Learning

Lean production entails the reinforcement of personal responsibility for performance, which is enhanced by job enrichment through multi-skilling and cross training (Honold 1997: 210). Moreover, lean production requires adequate training both of team leaders (Sohal 1996: 100) and of workers (Gorgeu and Mathieu 2005:

94, 98), above all in the area of interpersonal skills (Barton and Delbridge 2001: 471) and problem solving and improvement (Liker 2004: 38). Coordination becomes a corner management function and consequently, the supervisor role is much more clearly managerial inasmuch it involves minimizing costs, improving work methods and training multiskilled workers (Lowe 1993: 746), team building and leadership (Barton and Delbridge 2001: 471). Therefore, continuous training for performance improvement oriented towards efficiency is an important operational condition in a lean production system. When applied to social sector, it requires the consideration of both the motivations and the subjects of training.

2.2.11 Operational Control

Lean production impacts the control of human activities. It increases management power through a new form of workforce control (Parker and Slaughter 1995: 44) or inversely, it increases surveillance and monitoring of employees' performance (Delbridge et al. 1992). Alternatively, it increases employee cooperation (Womack et al. 1990: 113–115; Dankbaar 1997: 576–577). In summary, it increases employee autonomy (Schuring 1996: 77–181). The degree of autonomy degree at the operational level impacts team performance (Bidanda et al. 2005: 514). Human activities require mechanisms of surveillance and control. They can be formal or informal, mechanized or manual, and can operate either instantaneously or occasionally. Moreover, human activities increase positive operational convergence through continuous improvement (Sewell and Wilkinson 1992: 282–284), which requires information flow (Forza and Salvador 2001: 23–26). Thus, operational control involves autonomy and surveillance, along with continuous improvement. Applying this principle to social services entails an analysis of the processes of cooperation, monitoring, and coordination.

2.2.12 Internal Communication

Lean production and information and communication technologies are connected by reciprocal reinforcement. Lean production requires not only vertical communication among all of the organization's levels but also horizontal communication across functional areas (Bidanda et al. 2005: 513), both of which are necessary to multifunctional team performance (Åhlström and Karlsson 1996: 45). Standing alone, the application of information and communication technologies does not assure added value (Slywotzky and Morrison 1997: 700) because information management itself is the key factor for successful organizations (Glazer 1993: 99). Indeed, the successful implementation of high-performance models strongly depends on proper organizational communication and information management (Forza and Salvador 2001). For instance, information and communication technologies should encompass the entire value chain, articulate all of the agents (Mason-Jones and Towill 1997: 139), and facilitate the constitution of hybrid

organizations that combine push and pull principles (Riezebos et al. 2009: 245). Therefore, information/communication technologies managers play a corner role in lean production. Applying this principle to the social sector requires a communication approach that includes not only its nature (formal and informal), which is an addition to the reviewed literature, but also its relation to the hierarchical structure (horizontal and vertical).

2.2.13 Providers-Customers Relationships

According to lean production, organization is regarded as a system in which the supply chain is an element of the value stream that encompasses everything from the suppliers to the customers (Pettersen 2009: 134–135). All organizations have an operational supply chain, which normally is unique to each organization because it depends on the specific input- and output-related decisions that are included in the chain (Cox 1999: 169). The main objective of lean production is to eliminate waste by reducing or minimizing variability related to supply, processing time, and demand (Shah and Ward 2007: 800). According to this perspective, an organization is based on the supply chain management that links suppliers, product development, product production and customers (Womack et al. 1990: 58–62). Therefore, providers' relationships are involved in the value chain and they perform an important role in lean production. The analysis of this principle in the social sector should focus on the relation between identifying clients' needs and the providing processes.

3 Method

All of the organizations that were studied are non-profit and provide social services in the realm of human reliability. They are partially funded by public resources (70 %), with the remainder (30 %) coming from families in the form of service payments. Their direct clients are mentally and physically disabled people; their indirect clients are the government and the disabled people's families. Their quality management system is certified, using the Equass Standard as the reference norm. Their quality management systems use a software platform as an infrastructure; the software, labelled Quality Alive, encompasses the entire organizational value chain. This organizational change is oriented towards certification and in all cases is completely supported by public funding. The services provided take the distinctive forms of a care house, an occupational activities centre, (physical and mental) rehabilitation, an inclusion resources centre, and professional training. We designate these sets of specialized activities using the broad label of social services.

This management system is quite common, as these services share a formal model, which was defined by the state. From top to bottom, it is composed of a directional organ that has a collective and elective nature (first level); a services

direction organ that is singular and provided by nomination (second level); one social services director for each type of social service, appointed by nomination (third level); specialized personnel, including psychologists, therapists, professors, nurses, and monitors (fourth level); and personnel staff (fifth level). The relationship between the central state administration and the organizations is both financial and regulatory in nature, assuming the form of annual funding and the form of periodic and systematic inspection, respectively.

The surveyed individuals are higher technicians who belong to the second and third levels. Most of them (93 %) have worked at the organization for more than 3 years, signifying that, at the least, they have experienced one certification cycle of the quality management system. Therefore, these individuals possess deep organizational knowledge. They are mostly female (77 %) and they work primarily in two types of social services (66.4 %): the occupational activities centre and the care house.

The data-gathering instrument was based on the literature review related to the principles of lean thinking. Each principle was measured from five items. The participants were asked to rate each item of the instrument on a 5-point Likert scale, ranging from −2 (Strongly disagree) to +2 (Strongly agree), with higher scores indicating greater agreement.

Analysis was carried out in three steps. In the first step, we tested the organization's performance principles to analyse its dimensionality and reliability. For this purpose, we performed an exploratory factor analysis and a reliability analysis. In the factor analysis, we only consider the items whose loadings were greater than .50. For this reason, one item was dropped from waste elimination, standardization and employees' empowerment principles. All of the principles have a Cronbach's Alpha greater than .70 (lower was .763, in the multiskilled team principle; higher was .922, in the communication principle). In the second step, we tested the correlations between the organization's performance principles and the use of the computer platform on social services, the impact of the Equass standard on organizational effectiveness and the differences in the organization's performance principles between social responses (ANOVA test) and the nature of the presidency (t-Student test). Finally, in the third step, we interviewed technicians, who had been previously classified as desirable sources to enlighten us about the processes and practices and thus to help us determine the meaning of the results. We terminated the interviewing process when the information became redundant.

4 Results

4.1 Improvement of the Value Chain

The 'improvement of the value chain' principle comprises the relationship with suppliers and clients, which is mediated by the key processes. All of the variables show concordance, which is particularly high in the variables that are related to knowing clients and satisfying their needs; the concordance related to the

key-processes has little significance; the variable 'the key processes integrate tasks that have more benefits than costs' has a significant standard deviation. The quality standard has a limited conception of the value chain because it neither includes the suppliers nor adopts efficiency as a criterion of the quality management system's performance. Indeed, it adopts the effectiveness of the clients' capacity as the centre of service provision; thus, the low concordance of the key processes' efficiency can be explained by either the conceptual fragility of the value chain in the quality standard or the tacit definition of 'benefits' and 'costs' that is more or less shared by the technicians.

4.2 Waste Elimination

The 'waste elimination' principle is composed of time, material resources, human resources and information. All of the variables show low concordance and significant standard deviation; the variables with a higher concordance are those that indicate low efficiency; globally, this principle has a lower concordance and a higher standard deviation. Therefore—and tendentiously—although the waste of time and resources negatively affects efficiency, this trend is far from universal.

The application of the service blueprint and value analysis facilitates the elimination of non-value activities (Bowen and Youngdahl 1998: 214); the success of lean production implementation depends on the sponsorship of the lean principles throughout the value chain (Bhasin and Burcher 2006: 67). The quality standard does not focus on efficiency, whereas the management model incorporated into the software platform does adopt efficiency as the main goal. Among the technicians working in the social sector, there is a strong conviction that effectiveness is preferable to efficiency. However, considering the low concordance and high variance, the valuation of the efficiency is increasing in some organizations. According to the interview data, the reasons for this subtle trend are related to the management orientation defined and promoted by non-executive direction, the personal commitment of executive direction, the performance of consultants and the use of the software platform.

4.3 Pull Production

Lean production emphasizes the meeting between clients' needs and the services provided. The concordance is quite significant and the standard deviation is low in all variables; this principle has higher concordance and one of the lowest standard deviations, which means that its efficiency is both high and homogeneous. The quality standard is focused on assuring the services that are provided to clients and these results shows the trend towards practices' compliance with normative requirements.

Lean production adopts pull instead of push production (Olivella et al. 2008: 800–807). Pull means that upstream production activities are signalled downstream (Woomack and Jones 1996: 15–28, 306–311); that is, production begins only when a customer places an order (Worley and Doolen 2006: 230) because production is triggered by customer orders and the flow of production is pulled based on the needs of upstream operations (Schonberger 1982: 126, 164). The quality standard has adopted the self-determination principle that not only constrains adjustment of key processes to clients' needs and expectations but also remakes service plans. Thus, the quality standard implicitly brings the provided services closer to the pull production principle. Moreover, the higher concordance and the low standard deviation show that the practices satisfy the self-determination principle and tacitly, they embody the pull production principle.

4.4 Just-In-Time

The 'just-in-time' principle encompasses medical, therapeutic, food, hygiene and communication services. The concordance is significant and the standard deviation is low; this principle has one of the highest rates of concordance. Thus, there is a trend towards organizational capacitation to satisfy foreseen and unforeseen clients' needs and towards the homogeneity of the key processes.

The 'just-in-time' concept and techniques apply to services operations because they are processes instead of being product oriented; moreover, they can improve overall operations (Canel et al. 2000: 55, 58). Indeed, they can be applied to the customer-supplier relationship in the services environment (Humphreys et al. 1998: 185), and the more integrated the flow of data between them, the easier it becomes to respond to supply and demand across the network (Frohlich and Westbrook 2002: 730). These technical considerations help us to understand the observed importance of this principle. The quality standard emphasizes the product (human ability) instead of the process (capacitation). Although we do not consider the importance of time in the processes, the provision of timely services is driven by clients' needs, including those of internal and external suppliers. Among the external suppliers, medical, hygiene, and food suppliers, as well as those who provide software assistance, have adjusted their performance to the just-in-time principle. In these cases, this principle there both drives the performance of the key process and inspires the client-supplier relationship.

4.5 Standardization

The 'standardization' principle encompasses the compliance of the diagnosis, actuation, monitoring and improvement processes. The concordance is significant in all variables and the standard deviation is low; globally, this principle has one of

the highest concordance rates and one of the lowest standard deviations; there is a trend towards the standardization of the operations and the homogeneity of the standardized practices. The certification of the quality management system always causes process normalization, but does not necessarily cause practice standardization. Thus, those values seem like constraints. Although the quality standard does not include standardization, the software platform does entail standardization.

Standardization affects organizational performance. The adequate formalization and documentation of the processes reduces the uncertainty of both task performance (Ungan 2006: 145) and staff discretion (Meirovich et al. 2007: 250). Standardization reduces the costs of uncertainty associated with assessing product quality (Jones and Hudson 1996) and motivates organizational citizenship behaviour (Chen et al. 2009: 45). A positive impact on formalization and standardization was reported for for-profit services (Zeithaml et al. 1988), public government (Cohen and Brand 1993), public services (Hsieh et al. 2002) and hospital services (Meirovich et al. 2007). The quality standard requires key processes to be identified and monitored, but does not prescribe how they are monitored; it prescribes the existence of other processes—stakeholder participation, personnel recruitment and selection, and communication. In the software platform, all of the key processes are automatically monitored and many other processes and menus allow for organizational effectiveness and efficiency. Thus, practice standardization is stimulated by the quality standard and imposed by the software. The reduced use of the software in some services may be caused by these factors—the high cost of the learning curve (which is not desired by leaders) and the overall control of processes and tasks that is available.

4.6 Efficiency Culture

The 'efficiency culture' principle includes the valuation of teams' work, cooperation among teams and team members, just-in-time producing, waste reduction and operational autonomy. Globally, this principle has a significant concordance; the variable with less concordance is that of autonomy for operational decision taking; the standard deviation is somewhat significant; and although there is a trend towards the valuation of efficiency, it is not homogeneous. Thus, the existence of an efficiency culture inspired by lean principles is not universal.

Organizational culture impacts organizational performance. It models how to act and change (Clampitt 1991: 59–62), how to act and interact (Bate 1984: 59). Although it is difficult to change (Bidanda et al. 2005: 518), change might be facilitated by the adoption of lean thinking (Thirkell and Ashman 2014: 2959) and by the embedding of new cultural factors related to empowerment and sponsoring lean principles throughout the value chain (Bhasin and Burcher 2006: 67). However, the changing a culture's orientation from effectiveness to efficiency is quite difficult. On the one hand, the quality standard prescribes the formalization of organizational values; however, the values that it determines are centred on both

clients and employees, not results. On the other hand, although the software platform determines how to act, in some cases, there is a trend to use only the functions demanded by the standard or even worse, to use the functions in a manner that satisfies technicians; this means that software misuse implies wasting of the potential for changed practices and improved efficiency. Thus, is not possible to verify the idea that the 'culture is not an obstacle because techniques can change behaviour' (Schonberger 1982: 83–102). Conversely, there is more evidence for the idea that organizational culture 'can do things that the simple use of formal systems, procedures or authority/leadership cannot' (Ahamed et al. 1999: S430). Therefore, although the software platform offers technical support for people performance, in practical terms, its ability to influence the transformation of occupational subcultures and the organizational culture depends upon the normative power exercised by chiefs and leaders.

4.7 Continuous Improvement

The 'continuous improvement' principle encompasses both waste reduction and sources of continuous improvement. Globally, the concordance is low. Most of the performed improvements are not oriented towards waste reduction. Process monitoring, evaluation of client satisfaction and management of suggestions and complaints constitute major motivation for continuous improvement, whereas the results of internal audits constitute the minor motivation. There is significant diversity of practices, above all when those practices are related to an orientation towards waste reduction. Thus, there are several motives for continuous improvement, which is effectiveness oriented, not efficiency oriented.

Quality management theory strongly emphasizes quality improvement. There is a positive association between quality improvement and quality performance (Adam et al. 1997: 869), and between the strategy of continuous improvement and organizational performance (Terziovski and Power 2007: 162). Thus, continuous quality improvement benefits organizational performance. However, although continuous improvement is prescribed in the quality standard, it is restricted to service quality and does not embrace service efficiency. The software integrates the management process of continuous improvement, which is oriented towards both effectiveness and efficiency; however, because the quality standard is exclusively oriented towards effectiveness, continuous improvement processes tendentiously devaluate efficiency. According to the lean literature, continuous improvement is founded on the standardization of processes and tasks, employees' empowerment (Lander and Liker 2007: 162), and the stability of methods, which assures temporal regularity and the predictability of process outputs (Bouville and Alis 2014: 3019). Thus, continuous improvements in efficiency require the routinization of processes and practices. Software is a strong resource for assuring routinization and in the organizations in which it is broadly used, routinization is clearly higher.

4.8 Empowerment

The principle of 'empowerment of employees' involves the ability to make decisions. The concordance is significant, with exception of the variable 'the empowerment to take decisions is more formal than real'; the standard deviation is, tendentiously, low; globally, this principle involves a significant concordance and a low standard deviation; there is a double and convergent trend for the empowerment of employees and the homogenization of the operational deconcentration. Both the standard and the software emphasize empowerment as a human-resources management technique and therefore, it is a relevant factor in this lean principle.

The empowerment affects organizational efficiency. It permits a relatively comprehensive task evaluation (Thomas and Velthouse 1990: 678), improves teams' performance (Kirkman and Rosen 1999: 69) and in particular, improves customer relationships (Lashley 1999: 188). In social work, this empowerment is processed through participation (Adams 2008: 193–197). The standard includes the 'participation' principle, which embraces the creation of an organizational environment that is oriented towards the empowerment of clients and the training of staff to improve their facilitation abilities related to empowering clients to participate in the planning and evaluation of key processes. The management model that is included in the software has added employee empowerment to perform tasks. Overall, therefore, the standard and the software promote the empowerment of clients and employees. The results show that employee empowerment is significant, which means that participation processes are not restricted to the standard requirements and can follow other normative sources for conduct orientation. In some cases, however, empowerment seems to be formally adopted and informally reduced.

4.9 Teamwork and Flexible/Multiskilled Teams

The principle of 'multi-skilled teams' includes work flexibility and remuneration for flexibility. The concordance of the variables related to the existence of multiple skills, functional and temporal flexibility, quality and productivity is not very significant; the variables related to the relationship between flexibility and remuneration have a weak negative association and the highest standard deviation; there is a tendency towards similarity in the flexibility practices and differences in the remuneration practices. The standard prescribes a holistic approach to clients, which implies both employees' multiple capacities and performance recognition (which can be either material or non-material), but does not prescribe practices of work remuneration and thus, depends upon other normative requirements.

Teams' multiple skills are a feature of these organizations. Increased skills create greater work flexibility, reduce work costs, improve organizational efficiency and reduce operational control (Friedrich et al. 1998: 506). In the lean production

system, workers are multiskilled inspectors and improvers (Woomack and Jones 1996: 268). Work flexibility may take different forms. Specifically, it can be functional, financial, numerical (Atkinson 1984) and temporal (Forrest 2006); flexibility types are associated with the types of uncertainty that exist in the organizational environment (Dreyerand and Grønhaug 2004), including the degree of the demand fluctuation (Desombre et al. 2006: 141) and the organizations' competitive circumstances (Pinfield and Atkinson 1988: 19). In the social sector, the work flexibility is a growing exigency. The most common flexibility types are functional flexibility, which is caused by the complexity of clients' disabilities and the comprehensiveness of their approach, and temporal flexibility, which is caused by conditions of possibility that are specific to the services that are based on intensive work.

The theory of remuneration for work involves marginal remuneration. The skill-based payment approach accepts the assumption that it is individuals, not jobs, that have value (Lawler III 1994: 9–10), especially when work is articulated with policies, programs and actions that valorises shared activities and interdependence (Shaw et al. 2001: 382). The payment amount is associated with workers' responsibilities and the consequences of their actions, not the tasks to be performed (Manove 1997: 85–86). In the social sector, however, wages tend to be lower than in other economic sectors. This trend is caused by the following factors: the donation of part of their salary to socially worthwhile organizations (Preston 1989: 439); the numeric dominance of women, who encounter fewer repetitive tasks and more ways to enable skill development, along with salary equality between women and men (Preston 1990: 568); the devaluation of skills that are most valued in the for-profit sectors; and the appreciation of certain work facilities such as temporal flexibility, job security and less anxiety in performing job tasks (Hallock 2000: 254–55). In the social sector, work remuneration is determined by collective contracting, which is based on both held positions and work time; that is, it is based on impersonal criteria. Therefore, the remuneration for both capacity and performance tends to be rare because, on one hand, it is not formally required, and, on the other hand, the extraordinary performance tends to be regarded as a solidary duty. These organizations grant scheduled rest days to all of their members; this is an old practice. With the certification, this practice became associated with the recognition requirement. The standard does not stipulate that recognition must be linked to performance or that it is associated with compensation. Thus, work remuneration tends to be disconnected from both training for performance and skilled performance.

4.10 Continuous Training

The principle of 'continuous training' involves training in areas that are relevant to improving performance efficiency. Globally, the concordance is moderately significant; the most significant variables are related to the performance of the

key-processes and the enlargement/enrichment of the functional content of the charges; the standard deviation is not very significant. Thus, the greatest contribution of continuous training occurs in training to improve client autonomy, which is coherent with the focus of the standard.

Continuous training is a critical factor of lean production. The implementation of the quality management system depends upon human resources development policies and practices (Alagaraja and Egan 2013: 22) and thus, training and learning are critical to its success (Ramarapu et al. 1995: 42–43). In this model, training is a central part of the production process, which is embedded in a functional culture (Jacobs 1995: 322). The standard recognizes the importance of continuous training, which must be planned and controlled on an annual basis. The software allows one to plan, register the performed training, assess effectiveness and monitor the training plan, articulate the training process with the performance evaluation process and update employees' data. Thus, when combined, these resources can potentiate the effects of continuous training of employees. The low concordance of improving training certification might be attributable to its low impact on formal training. Indeed, although certification has improved the conceptual, operational and management skills of a significant part of the workforce, it has had a low impact on formal training process beyond the implementation phase. Its causes are associated with the direct and indirect costs of training, which inhibit investment in improving staff training.

4.11 Operational Control

The principle of 'operational control' involves performance control through monitoring, cooperation and meeting. Globally, this principle has a significant concordance and little significant standard deviation; the concordance is particularly significant in the variable that relates to increasing of formal meetings. Implicitly, the quality standard stimulates the planning and monitoring of the relevant operations. In turn, the software platform features functionalities to manage formal meetings, plan activities, and automatically monitor organizational performance. The increase in formal meetings is a consequence of a normative requirement, which specifies that it is teams that prepare plans and analyse the results of their execution. The low concordance of the increasing of the operational control can be explained by the previous existence of this procedure, which was required by the funding entity; however, it was informally performed and did not meet SMART objectives, which weakened the operational control.

The operational control may be either social or technical. Participation enables employees to exercise some influence over their work and the conditions under which they work (Heller et al. 1998: 15), which contributes to organizational effectiveness (Strauss 2006: 801). Just-in-time emphasizes teamwork, which stimulates the peer group's scrutiny of one's performance (Sewell and Wilkinson 1992:

281, 285); teams can be formed on the basis of production planning and control requirements (Rahimifard 2004: 3371). Information/communication technologies increase both effectiveness and efficiency because the database enables control processes (Evans et al. 1986; Bremmelgaart et al. 1989; Classen et al. 1991) and reduces the practices of the bounded rationality of decisions (Bakos and Treacy 1986: 110). Thus, a threefold organizational dimension—participation, management and technology—influences operations control. Indeed, the strengthening of operational control based on participation was supported by both the quality standard and the software platform, whereas management and technology were supported by the software platform.

4.12 Communication

The principle of 'communication' encompasses improvement of communication, may it be formal or informal, vertical or horizontal. Globally, the concordance is moderately significant and this is one of the principles with lower concordance: the standard deviation is not significant. The generalized moderation of the concordance on improving communication is due to the existence of intense informal communication, facilitated by the physical proximity of workplaces and the insufficient use of the communicational functionalities that are available in the software platform.

Organizational communication impacts organizational performance. Lean production implementation impacts communication (Worley and Doolen 2006: 243) and in high-performance management models, the vertical information flow that supports formal management tends to diminish, whereas horizontal information tends to increase (Forza and Salvador 2001: 32). This is a support factor for value creation (Christensen and Raynor 2003: 183; Choo and Bontis 2002: 199) because it is a promotional process of coordination and global integration of change (Beckhard and Pritchard 1992: 46–48), a process of information that favours efficiency, transparency and legitimacy of management (Kaplan 2005: 64), and a critical resource for organizational change (Van de Ven et al. 1999: 93) that is favoured by information technology and internal social nets (Dooley 2004: 362). Informal communication encourages discussion across the boundaries of organizational units and allows managers to be updated about organizational facts and problems (Clampitt 1991: 253), thus motivating managerial honesty (Newman 2014). Therefore, organizational efficiency depends upon the effectiveness of communication. The standard recognizes the importance of communication with internal and external stakeholders. The software platform has a sophisticated passive communication system, which is enabled by the adoption of the definition of processes as a set of tasks that are allocable to specific individuals or teams, along with other features that streamline active communication with employees, clients, suppliers and partners. More specifically, it includes planning organizational communication, an organizational communication process, scheduling meetings, internal mail and reminders. As noted above, organizational communication (either

as a principle of the standard or as a software functionality) obtains the highest correlation with lean production principles. Moreover, interpersonal communication in co-presence situations was also recognized because the 'operational control' principle increased the frequency of the horizontal informal communication.

4.13 Rationalization of the relationships with suppliers

The principle of the 'rationalization of the relationships with providers' relates to suppliers of health materials, hygiene and food goods, and consultancy services. Globally, the concordance is diverse; the timely supply of medicines receives significant concordance, whereas the supply of other goods receives a low significance; the qualification and evaluation of suppliers receives weaker concordance; the standard deviation has weak significance. The value chain shows better performance in the health realm, which is justified by the risks that are associated with weak performance. In general, however, providers' performance tends to be regulated, not assessed.

According to lean thinking, the supplier relationship is part of the value chain and should be regarded as a form of partnership. Such partnerships are viable when they enable strategic relationships between independent organizations that share common goals, seek mutual benefits and recognize high levels of interdependence (Mohr and Spekman 1994: 135). Moreover, when service processes are highly interdependent, relationships with suppliers are fundamental to customer satisfaction (Gittell 2002). The success of such partnerships depends upon the existence of a relative dependence, a relationship among action, communication, trust and specifications (Anderson and Narus 1990), planning and joint problem solving (Mohr and Spekman 1994: 148), and information sharing, management time, performance management and planning (Gibson et al. 2002: 677). Thus, information related to supply chains must be regarded as a strategic asset, which should flow with minimum delay and minimum distortion (Mason-Jones and Towill 1997: 140). Consequently, the theory focused on supplier partnerships seems to tacitly assume that such partnerships are rationalized from the perspective of strategic management. The standard does not consider this principle and therefore, the rationalization of management does not depend on this factor. The software platform has features that objectively enable an evaluation of suppliers' performance; however, because such an evaluation is not a regulatory requirement, it is not performed in all organizations. Thus, the supplier relationship can be based on normative sources that are not linked to quality and efficiency. Consequently, this may be a poorly regulated management area. Indeed, many informal partnerships that are established with local suppliers do not improve efficiency because they do not benefit from scale economies and cannot assure competitive prices. However, these partnerships are difficult to end because they are based on social capital and are not guided by economic rationality criteria; in other words, they chronically stimulate organizational inefficiency.

5 Analysis of the Relationship Among Principles, Resources, and Organizational Units

5.1 Association Between Lean Thinking Principles and the Uses of the Software

The analysis of the association between the use of the software platform and the performance of lean thinking principles (Table 1) permits the following findings: (1) there are no negative associations between these variables; (2) it is clear that communication is the software functionality that is more positively and significantly associated with lean thinking principles; (3) albeit more moderately, human resources management also has a significant association with lean thinking principles; (4) 'multifunctional teams' and 'rationalization of relations with suppliers' are the principles that are more positively associated with uses of the software; and (5) the 'waste reduction' principle has a negligible association with the software. Overall, it therefore seems that the features that directly generate efficiency, such as stock management, regulation of the system and the management cycle named PDCA (plan-do-check-act), have low associations with lean thinking principles. Moreover, the principle that directly focuses on waste reduction does not have a significant association with the uses of the software.

In theory, the software for resources planning and management has a positive impact on organizational performance. It improves organizational competence (Chen 2001: 378) and increases the satisfaction of customers and suppliers, overall productivity (Themistocleous et al. 2001: 202), process efficiency (Allen 2011) and overall efficiency (Shehab et al. 2004: 370). Thus, this software increases organizational efficiency. In this case, organizations that only use the software functionalities that meet the requirements of the standard squander their potential to promote efficiency and weaken their collective performance. Consequently, in some cases, the requirements of the standard constrain the uses of the software and therefore determine the efficiency level of the quality management system.

5.2 Comparative Analysis of the Social Services

The comparative analysis between the social services provided and the principles of lean thinking (Table 2) enables the following findings: among social services, just as there are differences in the principles of 'standardization' and 'continuous improvement'; according to the pull production principle, the care house has a higher value than professional training; according to continuous improvement and standardization principles, the care house has a higher value than either the occupational activities centre and professional training. According to the other principles, there are no differences among social services.

Table 1 Correlation matrix (Spearman's Rho) between lean thinking principles and software uses

Lean thinking principles	N	Software uses							
		PDCA cycle	System regulation	Stocks management	Clients' goods management	Human resources management	Invocing	Organizational communication	Equipment management
Improvement of the value chain	126	0.357***	0.279***	0.248**	0.233**	0.387***	0.174	0.631***	0.371***
Waste elimination	133	0.066	0.067	0.153	0.052	0.103	0.274**	0.106	0.167*
Pull production	121	0.366***	0.312***	0.166	0.238**	0.344***	0.134	0.433***	0.262**
Just-in-time	124	0.391***	0.322***	0.315***	0.282**	0.397***	0.189*	0.458***	0.319***
Standardi-zation	144	0.362***	0.330***	0.208*	0.197*	0.433***	0.177*	0.484***	0.293***
Efficiency culture	148	0.236**	0.233**	0.126	0.179*	0.398***	0.183*	0.444***	0.285***
Continuous improvement	142	0.225**	0.227**	0.279**	0.184*	0.431***	0.197*	0.471***	0.299***
Employees' empowerment	147	0.266**	0.266**	0.175*	0.174*	0.497***	0.234**	0.500***	0.271**
Multiskilled teams	135	0.331***	0.357***	0.353***	0.319***	0.491***	0.227**	0.566***	0.473***
Continuous training	146	0.380***	0.391***	0.214*	0.260**	0.482***	0.176*	0.588***	0.396***
Operational control	148	0.285***	0.269**	0.217**	0.192*	0.362***	0.194*	0.508***	0.406***
Communication	148	0.348***	0.294***	0.263**	0.230**	0.406***	0.231**	0.580***	0.435***
Rationalization of the relationship with providers	111	0.445***	0.309**	0.339***	0.370***	0.539***	0.246**	0.608***	0.435***

*$p < .05$; **$p < .01$; ***$p < .001$

Table 2 Differences among social services (one-way ANOVA) and the nature of the presidency (Student's t) for the lean thinking principles

Lean thinking principles			Social response			ANOVA test	Nature of presidency		t-Student test
			Occupational centre of activities	Care home	Professional training		Professionalized	Voluntary	
	N	M (SD)	M (SD)	M (SD)	M (SD)	F (*p*)	M (SD)	M (SD)	t (*p*)
Improvement of the value chain	126	0.79 (.64)	0.80 (0.74)	0.88 (0.64)	0.61 (0.59)	1.17 (0.313)	0.94 (0.70)	0.71 (0.59)	1.96 (0.052)
Waste elimination	133	0.36 (.85)	0.28 (0.94)	0.38 (0.91)	0.61 (0.66)	0.85 (0.432)	0.57 (0.95)	0.25 (0.78)	2.04 (0.044)
Pull production	121	1.10 (.68)	1.09 (0.77)	1.23 (0.64)	0.76 (0.55)	3.10 (0.049)	1.25 (0.74)	1.02 (0.63)	1.85 (0.067)
Just-in-time	124	1.04 (.67)	1.06 (0.71)	1.13 (0.68)	0.76 (0.56)	1.91 (0.152)	1.20 (0.68)	0.95 (0.66)	1.97 (0.051)
Standardization	144	1.01 (.72)	0.83 (0.98)	1.16 (0.66)	0.75 (0.56)	3.30 (0.040)	1.18 (0.69)	0.92 (0.73)	2.04 (0.043)
Efficiency culture	148	0.96 (.77)	0.85 (0.96)	1.07 (0.80)	0.77 (0.50)	1.49 (0.230)	1.26 (0.64)	0.81 (0.78)	3.51 (0.001)
Continuous improvement	142	0.58 (.69)	0.41 (0.89)	0.78 (0.63)	0.47 (0.61)	3.42 (0.036)	0.74 (0.74)	0.49 (0.66)	2.04 (0.044)
Employees empowerment	147	0.84 (.77)	0.70 (0.92)	0.93 (0.83)	0.64 (0.62)	1.45 (0.240)	0.97 (0.78)	0.77 (0.76)	1.48 (0.142)
Multiskilled teams	135	0.49 (.71)	0.45 (0.96)	0.59 (0.69)	0.48 (0.52)	0.37 (0.690)	0.73 (0.76)	0.38 (0.65)	2.78 (0.006)
Continuous training	146	0.66 (.75)	0.56 (0.90)	0.83 (0.69)	0.59 (0.59)	1.82 (0.167)	0.81 (0.84)	0.59 (0.69)	1.73 (0.085)
Operational control	148	0.86 (.71)	0.70 (0.90)	1.02 (0.63)	0.75 (0.63)	2.59 (0.079)	1.03 (0.77)	0.77 (0.67)	2.11 (0.036)
Communication	148	0.71 (.78)	0.59 (0.95)	0.89 (0.71)	0.55 (0.69)	2.49 (0.088)	0.93 (0.81)	0.60 (0.75)	2.51 (0.013)
Rationalization of the relationship with providers	111	0.85 (.66)	0.97 (0.64)	0.91 (0.68)	0.51 (0.61)	2.87 (0.062)	1.05 (0.71)	0.75 (0.61)	2.31 (0.023)

Standardization reduces the cost of uncertainty when producers and consumers assess product quality (Jones and Hudson 1996) and facilitates continuous improvement when best practices are adopted and generalized (Kristensen et al. 1995: 46). The perspective of process management increases integration, articulates work practices with organizational functions (Garvin 1998: 34), and offers an integrated approach to continuous improvement through the reduction of process variation (Kanji 1995: 3). These processes have an impact on behaviour in social services. Professional training processes are centred on trainee groups, whereas the care house processes are focused on clients; this difference in procedural guidance can justify the difference among those social services set forth in the lean production principle. Before certification, in most cases the care house service was badly managed and unorganized by processes, whereas in other social services, there were formal processes. In professional training, there were an accreditation system that involved standardization and continuous improvement; these procedural differences can explain variations among social services in relation to these principles. Thus, the differences in clients' intervention processes determine the variations among social services.

5.3 Association Between Types of Management and Lean-Thinking Principles

The comparative analysis of social services in relation to the presidency (Table 2) identifies some significant differences. When the presidency is professionalized, the concordance values have significance on the following principles: pull production, just-in-time, standardization, efficiency culture (quite significant), employees' empowerment, and operational control (significant). When the presidency is voluntary, the concordance values are significant on the following principles: pull production, just-in-time, and standardization. Thus, although the certification impacts on key-processes seem similar, the difference among types of presidencies increases when we focus culture, empowerment and control processes. In other words, the differences are higher on contextual factors of performance that are not supported by professional norms and depend upon daily management practices. According to these results, the nature of the presidency can influence performance efficiency.

The relationship between non-executive and executive direction is complex. Agency control implies that the control (ratification and monitoring) of decisions must be separated from the management (implementation) of decisions (Fama and Jensen 1983: 220). However, the division between the functions of direction and management, which corresponds to the formulation and implementation of the strategy, is simplistic and anachronic (Edwards and Cornforth 2005: 78). Indeed, the power of governing boards can be reduced by informal networks and processes, along with executive-provided information and options (Locke et al. 2005: 65). There is tension between non-executive and executive directions caused by the need to involve

non-executive directors to increase the knowledge that enables an understanding of executive directors' behaviour (Ashburner 1991: 215). Thus, the relation between the direction and management functions may be tense, and this tension will be attributable to both knowledge control and operational information. When technicians perform the direction, this tension seems to have less reason to exist. This tension reduction may be attributable to the following factors: greater fluidity in vertical communication between non-executive direction and executive management; greater empirical knowledge of reality than is used in decision-making; greater coordination between strategic decision and operational execution. Most non-executive directions is performed by volunteers and in some cases, the solution to balance the advantages of both types of direction was the integration of the person carrying the executive direction function in the non-executive direction board.

5.4 Association Between Standard Principles and Lean Principles

The analysis of the association between the standard principles and lean thinking principles (Table 3) allows us to identify the following characteristics: (1) continuous improvement, an important principle that is shared by quality standard and lean thinking that has significant correlations with other principles and the highest correlation with itself, focuses on the performance of human resources instead of on efficiency; (2) this client-focused approach, an important principle that supports the most common and current definition of quality, is overcome by the principles associated with the professional context in which clients are served (employee empowerment, multiskilling teams, and continuous training); (3) although communication is significantly associated with almost all of the principles, its theoretical and pragmatic importance has been analysed elsewhere; and (4) waste reduction has irrelevant correlations that do not appear to be significantly associated with any of the standard principles, which means that in cases in which they are correlated, there are non-standard causes for this result.

Quality consists of the satisfaction of customer needs (Logothetis 1992: 5; Crosby 1980: 42). Indeed, the customer is the most important part of production (Deming 1992: 5) and quality consists of establishing and satisfying customer requirements so that it is possible both to provide quality (Crosby 1989: 42) and to control quality (Feigenbaum 1991: 8). Continuous improvement is both process and people oriented (Berger 1997) and the continuous improvement of efficiency, quality and flexibility strongly contributes to sustainable production (Ron 1998) and is intricately linked to organizational learning (Ahamed et al. 1999). Thus, quality is viewed as the satisfaction of customer needs and quality management is viewed as a guide to improve people's performance. Indeed, continuous improvement appears more strongly associated with human resources management than with efficiency, thus demonstrating the importance of human resources in labour-intensive organizations.

Table 3 Correlation matrix (Spearman's Rho) between lean thinking principles and the impacts of the principles of the quality standard

Lean thinking principles	N	Impacts of the principles of the Equass standard on the organizations' efficiency									
		Leadership	Human resources	Rights	Ethics	Partnerships	Participation	Person centred	Comprehensiveness	Result orientation	Continuous inprovement
Improvement of the value chain	125	0.337***	0.512***	0.513***	0.474***	0.520***	0.484***	0.450***	0.516***	0.420***	0.524***
Waste elimination	131	0.108	0.008	0.161	0.079	0.171*	0.118	0.092	0.175*	0.157	0.109
Pull production	121	0.307**	0.401***	0.383***	0.338***	0.333***	0.264**	0.307**	0.365***	0.304**	0.363***
Just-in-time	124	0.295**	0.382***	0.440***	0.358***	0.412***	0.329***	0.339***	0.424***	0.308**	0.410***
Standardization	143	0.327***	0.376***	0.443***	0.362***	0.430***	0.431***	0.395***	0.502***	0.393***	0.446***
Efficiency culture	146	0.407***	0.446***	0.471***	0.417***	0.434***	0.407***	0.448***	0.463***	0.369***	0.435***
Continuous improvement	141	0.406***	0.520***	0.510***	0.414***	0.507***	0.430***	0.455***	0.550***	0.502***	0.556***
Employees empowerment	146	0.446****	0.503***	0.521***	0.447***	0.530***	0.490***	0.456***	0.513***	0.459***	0.498***
Multiskilled teams	133	0.396***	0.447***	0.417***	0.377***	0.429***	0.388***	0.410***	0.441***	0.380***	0.435***
Continuous training	144	0.470***	0.522***	0.492***	0.514***	0.474***	0.468***	0.439***	0.492***	0.468***	0.539***
Operational control	146	0.487***	0.488***	0.493***	0.456***	0.479***	0.486***	0.367***	0.492***	0.496***	0.551***
Communication	146	0.524***	0.570***	0.523***	0.534***	0.515***	0.502***	0.394***	0.483***	0.469***	0.554***
Rationalization of the relationship with providers	111	0.420***	0.495***	0.494***	0.492***	0.472***	0.285**	0.318**	0.368***	0.343***	0.414***

*$p < .05$; **$p < .01$; ***$p < .001$

6 Discussion

The social sector is an organizational field. An aggregate of organizations are linked by providing, consuming, competing and regulating ties whose existence must be empirically determined (DiMaggio and Powell 1983: 148). Organizations operate in rationalized environments that tie institutionalized elements to identities, structures and routinized activities (Meyer 1994: 33–36). There are three mechanisms that promote institutional isomorphism: the coercive, the normative and the mimetic (DiMaggio and Powell 1983: 150–154). Non-profit organizations tend to adopt the mimetic isomorphism (Frumkin and Galaskiewicz 2004: 302). That typology does not consider all sources of isomorphism. Specifically, it ignores management standards as sources of normative isomorphism, which are powerful instruments of organizational isomorphism; moreover, it devalues the isomorphic role of the software, which is a technical resource that constrains the homogenization of processes and the standardization of practices.

In the studied organizations, which operate in relatively stable environments, have secured funding and seek certification of their quality management systems, normative standard-based isomorphism is more important than normative technology-based isomorphism because certification requires a standard resource, not a software resource. For the purposes of this reflexion, however, the software assumes greater importance. The software platform has processes and features that exceed the standard requirements, which gives organizations the freedom to choose to take advantage or waste the excess capacity of that technical resource. This possibility stimulated diversity both among and within organizations, weakening technology-based isomorphism. It is not desirable to confuse this isomorphism's weakness with loose coupling because the former presupposes the existence of either an external constraint or a mimetic orientation, whereas the latter has a higher conceptual openness, which tolerates but does not require isomorphic constraints or orientations.

For organizations, legitimacy is very important symbolic capital. Legitimacy is a generalized perception or assumption that some of an entity's actions are desirable, proper, or appropriate within a socially constructed system of norms, values, beliefs, and definitions (Suchman 1995: 574), which affects organizational viability regardless of their performance (Scott 2008: 175). Legitimated organizations can more easily obtain resources for their survival (Parsons 1960: 175) or increase the likelihood of survival (Zucker 1987: 443; Zimmerman and Zeitz 2002: 414). Certification or accreditation is frequently employed as a prime indicator of legitimacy (Dowling and Pfeffer 1975; Ruef and Scott 1998) and is used to lend credibility to the communication of organizational attributes (King et al. 2005: 1104), which benefit from the existence of independent audits (Cashore 2002). Thus, the certification of the quality management system is a carrier of legitimacy that benefits organizations. More concretely, certification can stimulate changing stakeholders' practices. Indeed, technicians of the funding public entity recognize the advantages of certification for management and tend to alter their control

practices, making them more respectful and friendly. The local public administration tends to change its practices, beginning to act more deferential and cared for. For-profit organizations tend to address those practices in a privileged manner in the funding allocation. This increased legitimacy can be the primary motivation for certification, which means that legitimacy can be more valued than efficiency.

Organizational management involves addressing paradoxes. These paradoxes involve thoughts or opposing propositions, albeit contradictory, which are needed to allow a more evocative representation of reality (Slaate 1968: 4). They entail mutually exclusive oppositions that operate simultaneously, and they are creators of balances and fundamental dynamisms, promoting organizational sustainability (Cameron 1986: 545–46). Indeed, excellent organizations have paradoxical features, such as connection and disconnection, participation and non-participation, autonomy and dependence (Peters and Waterman 1982: 100). Organizational success depends upon the capacity to manage paradoxes (Hart and Banbury 1994; Quinn 1978; Bourgeois and Eisenhardt 1988: 817). Therefore, organizational performance management system is more constructed by social factors than by technical factors, meaning that it is beyond economic rationality (Halachmi 2005: 514). Moreover, the proper monitoring of organizational effectiveness and efficiency is inexorably associated with paradoxes because organizational regulation strategies can generate deregulated and deregulatory practices (Domingues 2011: 345–48). Thus, the certification of a quality management system involves organizational change and generates paradoxes. In this research, we have identified some of those paradoxes.

Certification has generated the paradox of inefficient effectiveness. Certification is often seen as a process that involves increased bureaucracy (Lipovatz et al. 1999: 546), record keeping (Brown and van der Wiele 1996: 58), and increased paperwork (Singels et al. 2001: 67). Thus, it is common to regard these consequences as negative effects. Among some technicians, especially in the therapeutic group, there is the idea that it is inefficient to attempt to achieve key processes meeting the standard requirements. This view is influenced by technicians' negative opinion of their registration tasks. Specifically, technicians believe that the record of both the creation of the capacitation plans and the plan's implementation are unnecessary and therefore contribute to inefficiency. However, task recording, which adds value to clients' capacitation, is a requirement of the standard that allows monitoring of clients' training and the adoption of improvement measures. Thus, the task of assessing the effectiveness of the quality management system' performance is regarded as a cause of its inefficiency; according to their opinion, the greater the effectiveness of the control process, the greater the inefficiency of the key processes. This perspective emphasizes the personal effort involved in task registration, devalues the monitoring of the processes and does not value the cost-benefit ratio when the benefit is organizational regulation.

Implementation of a quality management system in a software infrastructure generated the paradox of inefficient rationalization. Information/communication technologies impact the organizational sustainability strategy. They improve productivity (Powell and Dent-Micallef 1997: 396) and reduce transaction costs

(Clemons and Row 1991: 283). However, its impact depends upon top management's shared vision (Chen et al. 2010: 252), the role of top managers (Papp 2001: 5–6), and the development of organizational capacity in information technology (Bharadwaj 2000: 187). Indeed, the information technology strategy should be regarded in terms of organizational management, not in terms of functional management (Chen et al. 2010: 237); moreover, information technology should be regarded as a strategic component (Javenpaa and Ives 1990: 354). Thus, the implementation of quality management system in a software platform provides a double advantage: the management of the organization's entire value chain and the exploitation of rational technological information.

The software platform was designed to ensure high performance levels in terms of both effectiveness and efficiency. To achieve this objective, the management model developed and implemented in the software exploits the entire value chain; it integrates processes and functionalities that exceed the standard requirements. However, not all organizations exploit this technological infrastructure's potential. The reasons are as follows: (1) the use of the platform implies a learning curve that is seen as undesirable; and (2) the realization of all of the processes and tasks on the platform significantly increases panopticon control over employees, which stimulates fear. Thus, the software's marginal capabilities are marginally valued. Indeed, in these cases, the conduit is oriented towards the standard centricity and not towards the capability of the software, which means that technicians tends to use just the technological features that correspond to the standard requirements. Paradoxically, the software restriction imotivated by the quality-standard requirements, which are effectiveness-oriented instead of efficiency-oriented, stimulates the underutilization of the information technology, generating a waste of resources.

The resources that support the quality management system generated the paradox of differential isomorphism. A loosely coupled system is based on the properties of impermanence, dissolvability, and tacitness (Weick 1976: 3). Its existence is attributable to causal indeterminability, to fragmentation of the external environment and to the internal environment (Orton and Weick 1990: 207–208), to the unintended effect of intentional action (Thietart and Forgues 1995: 123), to the effect of ambiguity on environmental decisions (March and Olsen 1976), and to the effect of the nature of work (Weick 1976: 11–12). Thus, organizations can be homogeneous in some principles and heterogeneous in other principles (DiMaggio and Powell 1983: 156). Loose coupling increases operational autonomy and decreases the need for coordination (Weick 1976: 3), increasing the localized adaptation that facilitates survival in unstable environments (Weick 1976: 6–8) and increasing organizational flexibility that according to the theory being considered here, reinforces adaptive and survival capacities (Lutz 1982: 653). Indeed, the imagery of loose coupling tends to emphasize its functional value in total system adaptation (Morgan 1981: 35). This research revealed the existence of weak links between implementation of the quality management system and the efficiency of processes and practices, and between different modes of operation of the social services within the same organizations. These loosely coupled elements are less caused by personnel's adaptive responses to the environmental uncertainty than by

the result of the technical staff's resistance to the implementation of the lean principles that are integrated into the software platform. Consequently, loosely coupled properties reduce technology-based isomorphism, allowing an unintended and unexpected diversity of processes and practices.

Specialization and organic division generates the paradox of ineffective and inefficient specialization. Functional separation defines departments according to their functions (DuBrin 2012: 268) aggregates the same or similar activities (Griffin 2012: 162), stimulates differentiation of how to provide the organization with perspective and favours conflicts between departments (Selznick 1957: 15; Lawrence and Lorsch 1985: 90), decreasing organizational effectiveness and efficiency (Freeman and Cameron 1993) and creating barriers to communication and sharing meanings. This research shows that social services tend to adopt individualistic practices, even though the funding public entity requires sharing of specialized human resources. They also tend to compete with each other for ownership of the organization's resources. The annual activity plan is a standard requirement and despite its organizational transversality, most of its activities are individually performed by the various social services. Thus, organizational performance wastes the benefits of both cooperation and synergy, on the one hand, and increases operational costs, on the other hand. Thus, functional specialization stimulates organic individualism, which entails the waste of opportunities to enhance both organizational effectiveness and efficiency.

7 Conclusions

This research analysed changes in organizations with a certified quality management system. These changes are structured based on both a normative resource (the quality standard) and a technical resource (the software platform). The first requires conformity of the effectiveness-oriented practices; the second potentiates the tight coupling between quality and efficiency, exceeding the norm in the ambition of the organization's management. This simultaneous application of complementary resources, but endowed with different management guidelines, had unintended consequences. On the one hand, it created opportunities for various combinations of resources; it offered the possibility for diversifying the degrees of isomorphism and the emergence of several paradoxes. On the other hand, it stimulated unreasonable uses of technical resources; by offering functionalities, processes and menus that exceed the standard requirements, the software created a technological surplus, which when it was not used, became a waste. Finally, it created an organizational diversity and weakened the homogeneity of the field of non-profit organizations operating in the disabled people's social sector; indeed, whereas some organizations focused solely on conformity with the quality standard, others applied lean thinking principles to increase their efficiency.

This research showed how the implementation of two different but complementary resources can change the organizational field in the social sector. When

organizational change is based on resources that diverge in substance and converge in purposes, legitimacy affects rationality. When the normative resource (the quality standard) is more legitimate than the technical resource (the software) and the motivation is more oriented towards the symbolic value than towards the instrumental value of the quality management system, rationality tends to be oriented towards the organizational effectiveness.

Another reflection prompted by this analysis focuses on organizational diversity. On the one hand, organizations that leverage the opportunity to certify their quality system management improved their standard of performance, whereas other organizations observed less-rationalized performance standards. On the other hand, among the organizations that certified their quality management system, the diversity of guidelines for the use of resources increased heterogeneity, which is a result of both inter-organizational and intra-organizational differentiation. Finally, within each certified organization, the certification process increased both tight and loose coupling; this depended above all on the leaders' guidance in each social service, ranging from the complete to the mitigated uses of the technical resource.

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How to Learn Up from Lean Management in Health Services? HRM, Leadership and Relational Coordination

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Abstract This chapter suggests that while the case for New Public Services rather than New Public Management is well grounded, some expositions of it have neglected the degree to which much can be learned for lean hospital management from the ToyotaProduction System. It distinguishes inflexible Fordist production based on economies of scale and Taylorist surveillance of performance from Post Fordist lean production based on economies of scope and continuous improvement in work methods. It highlights the contrast between top-down management and transactional leadership in Fordist-Weberian hierarchies with relational coordination through lower-level transformational leadership enhancing base-up learning in the Toyota Production System. It seeks to inform hitherto inconclusive debates on the effectiveness of strategic Human Resource Management by distinguishing institutional, organisational and operational logics and the case for recognising mutual advantage from psychological contract not only between individuals or within groups but also at organisational levels. The chapter gives examples of learning from lean in health reforms in the US and Sweden, contrasts this with not learning from lean in New Public Management in the UK and also draws implications for operationalising lean management within New Public Services paradigm.

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1 Introduction

As Poksinska (2010) has illustrated, there has been a surge of interest in lean management in the sense of cutting waste in materials and time in health services since Womack and Jones (1996) recommended that the essentials of the ToyotaProduction System (TPS) could be applied to both hospital management and patient care. Pajak and Guest (2011), with reason, have recognised that 'lean thinking, based on the Toyota production model is gaining popularity in a healthcare context'. Teich and Faddoul (2013) have illustrated this from several hospitals in the US, notably one in Virginia from which more than 200 managers have visited Toyota in Japan.

On the other hand, whether public services can learn from lean in the sphere of production has been questioned by Osborne et al. (2012) who have claimed that New Public Management (NPM) is mistaken in drawing on models from private sector manufacturing. In seeking to address this issue, this chapter also draws on the concept of relational coordination between managers, workers and teams (Gittell et al. 2008), as well as whether 'silo' thinking can be overcome by boundary spanning between different services or units within an organisation (Mørk et al. 2012).

While strongly endorsing—and deploying—the concepts of relational coordination and boundary spanning we suggest that they can be extended beyond the intra-organisational context in which Gittell and Mørk, with their colleagues, have introduced them to relations between organisations and illustrate the success of this in Japan and what Hirschman (1970) much earlier had stressed as 'voice'. Further, while recognising the case of Mørk et al. that boundary spanning may need to challenge and destabilise boundaries within organisations, we also show that relational coordination between leading Japanese firms and their first and second tier suppliers has been stable over long periods of time and, in many cases, up to a century (Moriguchi and Ono 2004; Yamaguchi 2004; Braser 2014) as well as that this involve social relations of production rather than only a management technique.

We also draw implications from the difference between hierarchical top-down management and base-up learning in terms of otherwise inconclusive findings on the effectiveness of strategic Human Resource Management (HRM). Thus Guest and Bos-Nehles (2013) have found that available evidence suggests that HR managers do not make a major contribution to performance. Jackson et al. (2014) admit that a deeper understanding of the effectiveness of HRM is still an aspiration.

Moreover, as Guest et al. (2013) have recognised, the feasibility of HRM policies enhancing high performance depends on the external environment in which they may be attempted. For example, since the banking crisis of 2008, top management in many private sector organisations has presumed that they needed to reduce commitment to any plant branch or workplace that was not performing sufficiently well in terms of shareholder value. This was the reality of what Guest earlier (1998a) deemed a 'Mad Max' survival syndrome. And has been reinforced in Europe by the mistaken presumption that 'structural reforms' reducing labour

protection are needed for companies and countries to increase their competitiveness (Oliveira and Holland 2016).

Guest submits of holistic HRM that 'you have to buy whole-heartedly into the culture or get out' (Guest 1999, p. 6). And, as argued through this text, there may be gains from buying into a 'soft' HRM holistic approach with mutual advantage for both managers and employees at operational level where 'stakeholder' cooperation counts as a defence mechanism against down-sizing, local closure and global relocation. But, at organisational level, top managers in companies with global location options have been less 'buying in' to holistic HRM than 'getting out', and offering either harder HRM or closure (Holland 2015).

Savaneviciene and Stankeviciute (2012) admit that despite the great research interest in linkages between HRM and performance, there is still uncertainty concerning them.

There also are open questions on how some of the theorists of HRM are seeking to measure performance. For example, much of this has been concerned with 'strategic' HRM. Yet begs the question whether one of the reasons for ambivalent outcomes in relating this and performance has been precisely that such strategy is top-down, rather than devolved to different services and units within an organisation. Also, whether these may have relative autonomy on how to work rather than be constrained to assess employees by performance criteria deigned down from on high (Oliveira and Holland 2016).

Until recently only some western literature on HRM and performance recognised this, and related it to the importance of effective team working (e.g. Leggat 2007). Or that the model or mode of production, and its operational logic at work group levels, is crucial in enabling sustained high performance. Such as that there is a difference between Fordist economies of scale—more *of* the same—and Post Fordist economies of scope—more *with* the same labour and fixed resources. Also that the degree to which the practice of *kaizen* or continuous improvement in leading Japanese companies was not simply a management technique but, combined with commitment to lifetime employment for core workers, was transformational in the sense of Bass (1990) and Bass and Riggio (2006) rather than only transactional.

Gabriel et al. (2016) have developed a model submitting that HRM practices may enhance commitment in three key domains—skill, motivation and opportunity with which we agree, illustrate in what follows, and also make recommendations for enhancing HRM at operational levels. Yet there also is the question whether there are inertial institutional logics (Lok 2010) frustrating 'going lean'.

One of the suggestions that we make to address this, as in Fig. 1, is a distinction between institutional, organisational and operational logics. Thus at a macro level the functional parameters of an institution such as a National Health Service are determined by a government. At a meso organisational level there may be a degree of relative autonomy for a regional or local health authority or a hospital. At a micro operational level relative autonomy may be denied if a national government demands top-down performance criteria.

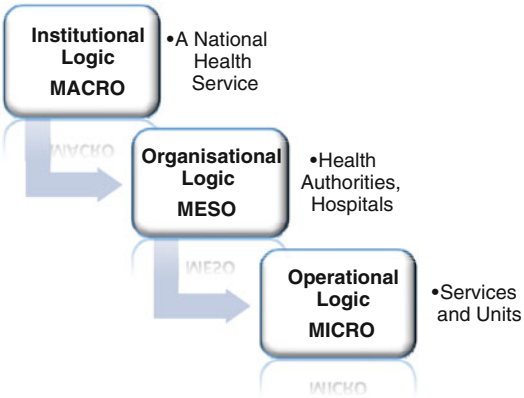

Fig. 1 Institutional, organisational and operational logics in health. Derived from Oliveira et al. (2014)

Logics at these different levels may be explicit or implicit and either complementary or contradictory. As with the rhetoric of adoption of lean management as a principle in the NPM health reforms in Britain, whereas its implicit organisational logic was not new but regression to Fordist economies of scale within a top-down Weberian hierarchy (Oliveira et al. 2014; Oliveira and Holland 2016).

The operational logic of NPM reforms in the UK was a shift from trust in health professionals to performance assessment by introducing line managers from the private sector to implement market or 'quasi-market' reforms (Le Grand 1997) which in practice did not reduce but trebled administrative costs (Pollock 2004). As indicated in this chapter, out-sourcing of surgery and hygiene to private contractors increased risk to patients. The focus on economic efficiency in the UK NPM reforms and, after devolution of health to Scotland and Wales, the English NHS, not only was counter productive in terms of costs, but also was a failure in terms of social efficiency in the sense of wellbeing both for patients and for health professionals.

The opening parts of this chapter outline the top-down change management of Ford in achieving ecoomies of scale, which was so successful that at one point he was producing near to half the vehicles in the world. But contrasts this with the incremental base-up learning of lean management at Toyota, including both the continuous improvement of *kaizen* and economies of scope, which was so successful that in 2006, having come from near bankruptcy in 1948, Toyota overtook GM as the world' leading vehicle producer (Nakamoto and Reed 2006). The distinction stressed by Schumpeter (1911, 1949) between product and process innovation was central to this. For Ford product innovation came first and process innovation—the assembly line—second. For Toyota it was the reverse. Process innovation through continuous improvement in work methods enabled it first to survive and then to flourish, Product innovation—hybrids—followed much later.

2 Ford and Fordism: Leading from Above

It has widely been assumed that the success of Ford's Model T was due to his invention of a moving assembly line and combining this with Taylor's (1911) ultra-division of labour, brilliantly parodied by Charle Chaplin in *Modern Times.* But, inversely, it was the success of the Model T in terms of innovative design, engineering and low price which meant that Ford needed a moving assembly line to meet unprecedented demand for it. Since he was not only an innovative engineer, but a social engineer. He wanted a car that could be bought by 'The Common Man' and his family rather than only by the rich (Lacey 1987).

The key features that made the Model T such market success were its single cast cylinder block, when cylinders on other cars were held together by steel bindings and could come apart, needing frequent repairs. Also its highly flexible chassis made of a compound of vanadium steel which could survive unmade suburban, urban or rural roads. As well as its belt driven transmission system that did not need cogs for gear changes which, at the time, could easily be stripped, and costly to replace. And also the first case of a magneto rather than a battery, which could ignite the engine with a few turns of a starting handle, and was vital in rural areas where there as yet was little electrification to recharge batteries (Lacy 1987).

Yet though Ford was a brilliant engineer he could not delegate, even when he had succeeded so well with his Model T as to be making nearly half the vehicles in the world. He had grouped a handful of men such as Sorensen, a Swedish carpenter who had helped Ford build wooden models of the components of the Model T since Ford wanted to visualize them in three dimensions rather than only from a two dimensional blueprint (Sorensen 1956), as well as 'Spider' Huff who had developed the magneto for Ford, which meant that it did not need a battery. Well into his success with the Model T none of his close associates even knew what their jobs were. When interviewed by a journalist and asked what his role was, Sorensen 'supposed' that he was Ford's production manager. 'Spider' Huff, 'supposed' that he was his chief electrical enginleer (Lacey 1987).

Such a refusal to delegate, and devolve responsibility later was to be typical of the top-down authoritarian institutional logic of New Public Management. Though it had not been his aim, Ford's mass production decimated former handcraft assemblers of cars. When Will Durant grouped a handful of surviving firms in General Motors, he initially did not do much better in terms of delegating authority granted that he 'had absolutely no idea how to manage anything once he had bought it' (Womack et al. 1990, p. 38). It was only under pressure from GM's bankers that the accountant Alfred Sloan was invited to take over the company and transformed it into the paradigmatic multi-product, multi-divisional company with the clearly designated managerial roles and responsibilities that Ford himself initially resisted (Sloan 1964; Lacey 1987).

Moreover, while Ford in practice was among the greatest innovators in production methods of all time, he also, if for the same reason, was obsessive. He not only exhibited what Klein (1932, 1952a, b) would call 'projective identification'

with the Model T. He for too long refused to modify it and introduce new models. When his son Henry Ford II conspired with Sorensen and others to develop a lower, lighter Model T, with windows (the original had none), a fascia panel, and in a gleaming red rather than black, Ford paused for a moment when being shown it, then picked up a nearby wrench and smashed its windows, fascia, headlights and grill, and actually managed to pull off one of its doors (Sorensen 1956). He, alone, led, and would not tolerate challenge to this.

Such near psychotic behaviour not only, for a long time, blocked any question in the Ford Motor Company of new models, or product innovation. It also left a welcome space for a few of his surviving competitors to copy his moving assembly line while also offering newer models, with different body colours and other features. Sloan at General Motors led the way in this, followed closely by Chrysler. The two other small US motor companies surviving on the edge of the market, Studebaker and American Motors, gladly followed suit (Holland 1987; Lacey 1987). Sloan introduced 'planned obsolescence' or devaluing last year's model by changing the next. Ford refused precisely because of the philosophy and values which had driven his initial success. He did not want a car that became out-dated every twelve months, but one which would last its user, reliably, for a lifetime. Turning him on this was slow, painful for those around him, and by the late 1920′s could have bankrupted his company (Lacey, ibid).

3 Toyota and Post Fordism: Leading from Below

A central distinction between Fordism and Post Fordism as management paradigms is between inflexible economies of scale—doing more of the same at lower cost—and economies of scope—doing more with what you already have. The term Post Fordism was influenced by the low volume but high quality flexible specialisation claimed by Piore and Sabel (1984) in their analysis of Italian industrial districts. But it is the high volume, customised 'lean production' pioneered by Toyota and analysed in the MIT world auto study *The Machine that Changed the World* (Womack et al. 1990) that has made a major impact on management thinking.

Originally a textile machinery company, and then into vehicles for the military in the 1930s and during WW2, Toyota in 1946 was only producing as many cars a year as General Motors was producing in a day. The family which owned the company was Toyoda, whose name in Japanese meant 'rich rice field', and was a less than compelling brand name for any product other than rice itself. A competition to change the name came up with the bright suggestion of changing the 'd' in Toyoda to a 't' on the grounds that in Japanese this meant nothing. Now, as a both brand name and as a production logic, it means near to everything to those global competitors that are trying to emulate the sustained efficiency gains through continuous improvement that, over more than half a century, it has achieved.

But this was to take time, formidable lateral thinking, a bitter industrial dispute in 1948 which only then led to consensus, and a later 'iterative' path, longer than

Ford's mass production revolution but one which, within a few decades, was to surpass it. The start was slow not least because although Toyota's trucks were good enough, its cars were derived from models for the military, designed for field use, heavy to steer and also far too expensive because of their low production volume than many Japanese after the defeat of Japan, could afford (Womack et al. 1990). Toyota also could not deliver a car that people rushed to buy as the US public had for Ford's Model T, not least since few people in Japan just after WW2 had even more than subsistence levels of income.

Toyota was to transform this not only by making vehicles at lower cost by economies of scope rather than scale, and by an operational logic of 'fault free' production, making them attractive because reliable. But aso because, when the US as the occupying Allied Power, went to war in Korea in 1952, it needed precisely what Toyota could not sell on any scale in Japan after WW2 but already could produce well—trucks and staff cars.

A key factor in the success of the Toyota Production System (TPS), and its parallel by other leading Japanese producers, also was commitment to lifetime employment for core workers. It was not alone in this, nor the first to introduce it. By contrast with the concern of the European Commission since the onset of the financial crisis in 2008 to introduce flexible labour markets through 'structural reforms' reducing the rights of 'insiders' on the presumption that this decreased efficiency, lifetime employment was the outcome of the *failure* of such flexible labour markets in Japan in the early 20th century. Japanese industrial firms had been training engineers, at considerable cost, but then found that they quit to accept higher pay offers from others. As a result most of them introduced annual wage increases or 'seniority pay' as well as profit-sharing to retain them as 'insiders' (Yamaguchi 2004; Moriguchi and Ono 2004; Oliveira and Holland 2016).

Such a commitment to lifetime employment underlay a key feature of the success of the Toyota Production System—*kaizen.* This normally is translated in western management texts as continuous improvement. Yet *kaizen* in Japanese combines two words and two concepts—*kai* meaning change for the better or improvement and *zen* signifying something that is to mutual advantage. The advantage for core workers in leading Japanese companies after WW2, was 'lifetime employment' until at least the age of 55, and a seniority wage system with annual increments, plus twice annual profit sharing. The advantage for the organisation was that the commitment to lifetime employment enabled the *kai* of continuous improvements in methods of work operation. For workers who suggested such improvements not only knew that they would gain a bonus if it were accepted but also that they would not thereby be innovating themselves or their colleagues out of a job (Colenso 2000; Oliveira and Holland 2016).

The emergence of what became known as the Toyota Production System or TPS, as in the case of Ford and Fordism, depended also on strong leadership. This was by an exceptional individual, Taiichi Ohno, who was to play a key role in Toyota after WW2. Like Ford, and Taylor, Ohno had a formidable personality, was highly 'self-directed' generated manifold enemies within Toyota long before he was

venerated, and relied on support from the boss, which in his case was Toyota's head of family Eiji Toyoda (Ohno 1988a, b; Womack and Jones 1996).

His psychology was evident in his observation in the 1980s that:

> Companies making even a modest profit never use the Toyota Production System. They can't. On the other hand there are nearly bankrupt companies that implement (it) to the fullest, knowing they won't lose much even if it fails… This is the advantage of a defiant attitude' (Ohno, in Shinohara 1988, p. 152).

Ohno was an instinctive change maker. But his leadership was from below and base-up rather than, in Ford's case, top-down. He realised from the start that Toyota could not possibly achieve Fordist economies of scale since its annual production was no more than a US major's daily output. He was aware that if Toyota was to survive it had to do near not only something but near to everything differently. He then 'came up with' a range proposals which made this possible (Kaplinsky and Posthuma 1994; Womack and Jones 1996) though none of them were either as ordered or sequential as their exposition below.

1. One of Ohno's insights was that faults often went through in production of parts without being noticed. His initial response was to adapt machine tools to signal this, with warning lights.
2. He extended this to assembly, allowing any worker to 'stop the line' by pulling a cord alongside it to prevent a fault going through, which had been anathema to Ford.
3. He also reduced the cost of unused stocks of components on a 'match' rather than 'batch' basis, by which no production team or unit would produce more parts than were needed by the next one. This was an internal just-in-time logic which later became famous by insisting that 1st and 2nd tier suppliers delivered components to Toyota only when they were needed for assembly.
4. He realised the importance of fast tool changes, even if the later and better known quick changes of the dies for pressing cold steel body parts only were to follow in the 1960's.
5. He was a passionate advocate of cutting '*muda*' or waste either in working time or in materials (Colenso 2000) which later caused Womack et al. (1990) to designate the Toyota Production System as 'lean'.
6. Further, he reorganised the layout of the production of parts for assembly into 'cells' in which all operations at a given stage of production, such as the use of lathes, milling, drilling and grinding were done in groups, and where group members for the different operations could help each other if problems occurred.

In practice, Ohno's adoption of the 'cell principle' was a reversion to what Ford initially had sought to overcome, but with a key difference. Ohno insisted that each cell or work group was responsible for achieving fault-free production. Strikingly also, in contrast with much concern in the debate on strategic HRM on what should be the role of line managers in assuring fulfilment of this at operational levels, and by contrast also with the cncern of New Public Management in the UK to introduce line managers to monitor the performance of health professionals, Ohno ensured

that the authority of supervisory line management was side-stepped, and devolved to the self-managing groups (Womack and Jones 1996).

4 Contrasts Between Fordist and Post Fordist Production

Contrasts between Fordist and Post Fordist production, as typified in the latter case by the ToyotaProduction System (TPS), are summarised in Fig. 2. In both cases there was top-down strategic thinking, even if this often was reactive rather than proactive (Oliveira and Holland 2016). In both cases the organisational structure was pyramidic, but in a Fordist organisation uni-centric whereas a Post Fordist organisation on the TPS model was polycentric. Agency in Fordist production was centralised, whereas in the TPS model in it was devolved. Initiative in Fordist production was top down, whereas in the TPS model, as with the operational logic of *kaizen*, it was was grounded in group learning and base-up. The Fordist model relied on economies of scale whereas in the TPS model it was driven by ganing economies of scope.

The Fordist model assumed that capital was a fixed cost and labour a variable or disposable factor of production. Whereas in the TPS model capital was a variable cost, that should be scrapped if inefficient, and labour a fixed cost due to the commitment to lifetime employment. While the culture of Fordist production was low cost, that of the TPS was continuous improvement. While its division of labour was specialised and single tasked, that of the TPS was multi-tasked. Operational learning in a Fordist-Taylorist paradigm, granted Taylor's ultra-divison of labour and task designation (Taylor 1911) was minimal to nil. In the TPS operational learning within and by groups was maximal. Production in the Fordist model was specialised and the product standardised. In the TPS it was variable and customised. In the Fordist model external relations were arms' length. In the TPS case they were hand-in-hand. In Hirschman's (1970) terms, the main supplier option within Fordism in the case of inadequate performance was 'exit' whereas in the TPS it was 'voice'.

Some of these contrasts in Fig. 2 also merit further analysis in relation to both economic and management theory. A foundation of western microeconomics is a Cobb and Douglas (1928) production theorem, one of the most basic premises of 20th century Western economic thought. This premises that production is a function of the combination of capital and labour which in itself is reasonable. But the theorem, or function, assumed a constant relationship between capital and labour, i.e. no change between them over time whereas Schumpeter, with reason, had claimed that it was precisely such change that enabled economies—and societies—to move to higher levels of both income and welfare (Schumpeter 1911, 1949; Sylos-Labini 1995).

The theorem also played another role in mainstream economic thinking in that since capital nominally is a fixed cost in plant and equipment, it came to be presumed that the only way to increase competitiveness was to reduce the cost of

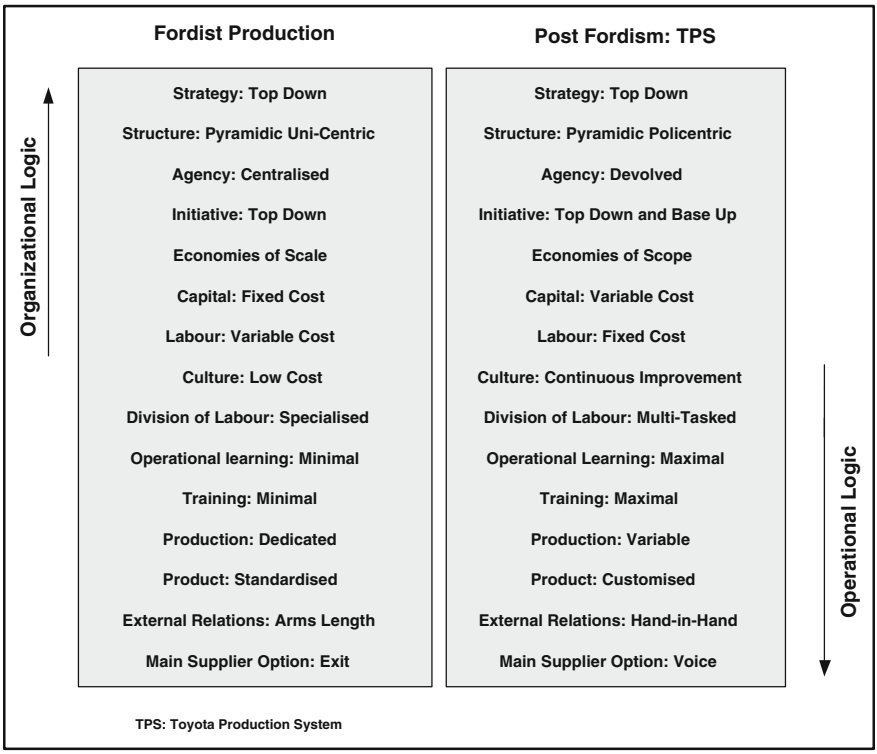

Fig. 2 Fordist and Post Fordist Production. Own Formulation: Toyota Production System (TPS)

labour. With lifetime employment in Japan since the early 20th century this logic was reversed. With a commitment to long term employment, labour became a fixed factor of production, meaning that Japanese manufacturers had to gain continually better use of it. In leading Japanese firms flexible production and innovation are integral to the labour process through continuous improvements in work methods—*kaizen* (Yamaguchi 2004; Moriguchi and Ono 2004). Such as was evidenced in Japan after the impact of the 1973 first OPEC oil shock when, encouraged by the Japanese Ministry of International Trade and Industry, and with financial support, leading companies diversified much of their capital investment and also accelerated continuous improvement in methods of work organisation by which companies such as Toyota and Honda managed to double labour productivity in the following decade whereas the US auto majors hardly increased it at all (Shimada 1979, 1992; Ohmae 1982; Okimoto 1989).

4.1 Holistic Relational Coordination

The Toyota Production System also embodied key features of relational coordination (Gittell et al. 2008), as well as boundary spanning (Mørk et al. 2011). This was not only within Toyota as an organisation, as for Gittel et al. and Mørk et al., but also in relations with suppliers, especially in terms of *kanban* just-in-time delivery of components. It also combined relational coordination with buyers enabling them to specify the colour and other attributes of the vehicle they wanted. And, in these regards, embodied not only 'holistic' HRM within an organisation (Jackson et al. 2014) but 'holistic relational coordination'.

At Toyota this took time to achieve. Not all of its first and second tier suppliers initially learned up on the *kanban* dimension of lean production. But, by the 1990s, when they had, it meant that a customer could specify 80 or more individual features of a vehicle and have it delivered to them within a week. Which is relational coordination with consumers rather than only in production. Whereas, within the same decade, a producer such as Chrysler was producing up to four months supply of vehicles without many or any of them being sold and swathes of employees being made redundant (Milne 2005).

Boundary spanning in the TPS and leading Japanese firms also concerned job rotation. This has meant that workers can spend time with an assembly plant, then some in marketing, or direct door-to-door sales, some in cost control or accounts, and some in relations with supplier companies. Ohmae (1982) has stressed that this internal redeployment and job variation has ranged widely beyond the auto industry and relates also to explicit strategies for corporate product and market diversification.

In his contributing to a Special Report on the survival of lifetime employment for The Japanese Times, drawing on several Japanese studies as well as his own experience of retraining Japanese engineers as sales managers, Braser (2014) found to his surprise that such job rotation was not a loss of their identity as engineers, which they retained, and since they would return to engineering. Rather, in the interim they gained what in HRM terms was enhanced organisation-fit rather than single job-fit which also qualified the alienation of Ford and Taylor's single tasking.

None of this should romanticise the Toyota model. It was to mutual advantage of Toyota as an employer and of employees and in this sense embodied psychological contract. But, as rightly stressed by Fincham and Rhodes (1999), it involved varying degrees of constraint. In return for job security, and to achieve customisation of products for buyers with such short delivery dates, workers had to accept and respect the production schedules determined by managers. Related to this, until more recently, was a lack of work-life balance, which two of us recently have critiqued extensively elsewhere (Oliveira and Holland 2016).

But as outlined in Fig. 3 and what follows in this chapter, we suggest that lessons from the Toyota Production System are relevant to achieving 'holistic relational coordination' not only in vehicles production or other manufacturing, but also to services and, especially public services such as health.

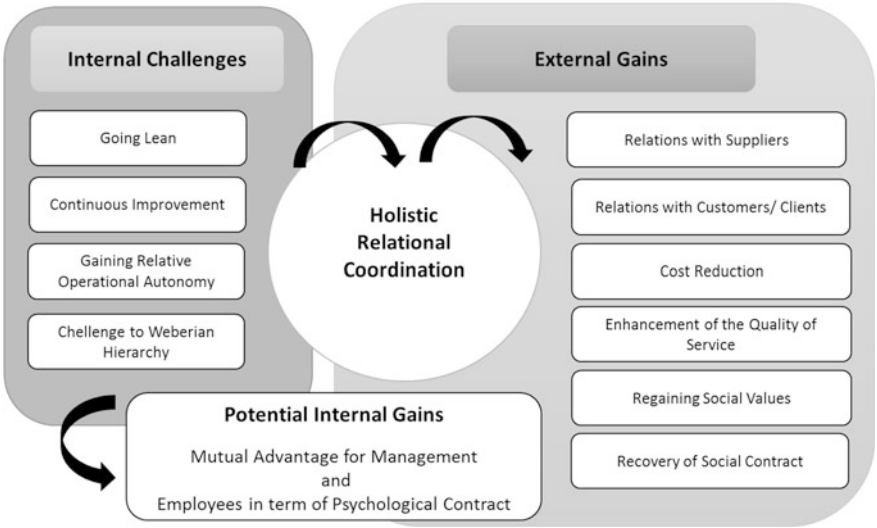

Fig. 3 Challenges for and Potential Gains from Holistic Relational Coordination. *Source* Own formulation

5 Transactional Versus Transformational Leadership

Ford embodied some features of LMX leader-member-exchange theory (Ilies et al. 2007; Dulebohn et al. 2012; Day and Miscenko 2016) in terms of (1) role taking; (2) role making; (3) rewarding performance and (4) routinisation. Yet contradicted some versions of later LMX theory, and one of the main themes of this chapter, in that he was not at all concerned with group working.

Moreover, Taylor's ultra-devsiion of labour and single task routinisation, was both exhausting and alienating. Despite $5 a day, most of Ford's workers at his first mass production plant at Highland Park factory quit well before the profit bonus to which they were entitled if they were to stay for 6 months. In the first year of the fully integrated Highland Park production line, the turnover was greater than his whole initial labour force (Lacey 1987). More simply, he lost all, save a very few, of his initial 'transactional' employees.

Transactional leadership therefore was not working even for the innovator who transformed handcraft vehicles assembly into mass production. While his opposition to any form of unionisation needed the top-down legislative intervention of Roosevelt's New Deal to secure the right to form unions and insistence on a minimum wage which matched Ford's production revolution with the high earning, high consumption capitalism that Gramsci (1947, 1975) conceptualised as "Fordism".

By contrast, lifetime employment for core workers in leading Japanese manufacturers was not transactional in the sense of 'stay with us and we will assure you

annual seniority wage increases and profit sharing'. It transformed labour relations in Japan despite there being no effective national trades unions until the MacArthur reforms after WW2 and no central role for them in bargaining on wages or working conditions thereafter.

At the heart of this transformation was *kaizen,* which has been misunderstood by even a leading management theorist such as Porter (1990) who has claimed that it has 'failed' American managers. The only example of this that he gave was quick changes of the dies for pressing cold steel body parts, yet whose significance Porter has entirely missed. Since, for Toyota, which still lacked economies of scale at the time, quick die changes enabled a major economy of scope. Combined with *kanban* just-in-time delivery of components, it meant that it could produce more than one vehicle on the same production line, initially in different working shifts but also later, if needed to gain a rapid response to changes in consumer demand, within one shift.

Whereas the US auto majors at the time did not need quick die changes for pressing body parts. With Sloan's introduction of annual body changes to promote 'planned obsolescence' of yesteryear's model, die changes for pressing body parts could take place during the three week annual holiday for most workers. These then were bolted to the underside of the steel presses. The quick die changes at Toyota circumvented this by sliding the new die horizontally under the press, and 'clipping' rather than bolting it. Which took 3 minutes rather than three weeks.

Porter also has neglected that, as Colenso (2000) has stressed, 'at the heart of *kaizen* lies a set of values' including a mutual commitment to valuing the work of others, rather than management treating labour as only a disposable factor of production. As Kaplinsky and Posthuma (1994) have put it, the answer to why *kaizen* has not 'delivered' for so many firms outside Japan:

> lies in the social rather than the technical domain, for the essential principles of these Japanese techniques – their *technics* – are easily comprehended and not technologically complex. But their successful adoption overturns many of the social relations of domination which were so important in the evolution of Taylorist forms of production management and control' (Kaplinsky and Posthuma, ibid, p. 285).

It was this that enabled Toyota first to survive after WW2 and then to become a global leader not only in terms of its world market share but also in terms of process innovation. Which it then matched from the later 1970s by product innovation through developing hybrid engines, such as for the Prius, to be followed by Honda with its Insight, whereas the US auto majors at best could suggest electric power for small vehicles, never made a success of them, and by the beginning of the 21st century were calling on the federal government for life support (Simon et al. 2009).

6 Beyond Fordist and Weberian Bureaucracy

A Fordist organisation with a top-down Taylorist division of labour therefore cannot readily achieve process innovation. Unless it 'delves-down to learn up' (Oliveira 2007a, b) it will not be able to draw on the tacit knowledge, skills and experience of those who may know best what is going wrong with how things are being done and how they could be improved to mutual advantage, nor interface tacit knowledge and explicit knowledge in the manner that Polanyi (1968) has claimed is more important than inference for understanding and that Baumard, Nonaka and others have stressed as vital for creativity and innovation (Baumard 1999; Nonaka 1994a, b; Nonaka and Takeuchi 1995; Baumard 1999; Ichijo and Nonaka 2007). For when an organisational logic is the summing of operational logic, and this is designed top-down on Taylorist principles, no 'base-up' learning is feasible. The same also is the case with Weberian bureaucracy which is especially relevant to public services and which may frustrate efforts to 'go lean'.

Weber's organisational paradigm of bureaucracy differed from Ford in the principle that Ford for a long time refused—delegated decision-making and administration. Yet the parallels between the operational and organisational logic of Weber's 'ideal type' of bureaucracy and that of Fordism are extensive, and typical of Fordist-Weberian hierarchies.

1. Authority in a Weberian bureacracy is hierarchical, pyramidic and concentrated at the top (as with Ford).
2. The hierarchy assigns specialist functions at all levels of an organisation, from top to bottom (as with Taylor).
3. Explicit rules and actions govern all decision making, and informal discretion is 'out of order' (as with both Ford and Taylor).
4. Behavioural norms require that service to customers or clients should not be personalised, nor take account of individual or group needs (as with 'any colour you like provided it is black').
5. The reward of bureaucracy for compliance is continued job security, and its sanction the power not to promote or to dismiss (as with Fordism).

6.1 Weber's Disavowal

Besides which, although Weber characterised bureaucracy as an 'ideal type' in the sense of an archetype, personally, he deplored it. He recognised that its pyramidic power structure was oligarchic rather than democratic, impenetrable to its clients and 'soulless' in its denial of individualism. In this regard he differed diametrically from Taylor (1911) in lamenting:

> [s]pecialists without vision, sensualists without heart; this nullity that imagines that it has attained a level of civilization never before achieved (Weber 1930, p. 182).

Weber claimed that 'the big question' was what alternative could 'keep a proportion of mankind free from this parcelling out of the soul, from this supreme mastery of the bureaucratic way of life' (Weber 1957, p. 182). In this regard he was addressing what his contemporary Michels (1915, 1962) identified as a tendency to an 'iron law of oligarchy' in organisations, or what Weber himself called the 'iron cages' within bureaucracy, concluding pessimistically that they would 'defeat democracy' (Weber 1957).

Weber's presumption of soulless bureaucracies nonetheless needs a distinction between bureaucracy as an institution from bureaucrats as a type. Blau (1970) has argued that what was missing from what he called Weber's 'functional scheme' was recognition of dysfunctions not only if employees challenged its rules, but because of undue respect for them and the tendency within a rigid hierarchy to encourage and reward conformism. He also claimed that Weber neglected the degree to which a pronounced division of labour can create serious problems of coordination in a large organisation. Specialist supervisory and administrative staff are needed in a bureaucracy, yet this is not sufficient to assure that all work is 'rationally' organised, nor that its efficiency is anything like maximised, while attempting to monitor all aspects of the labour process can constrain creativity, cause stress and encourage minimal rule compliance. In which case, a bureaucracy may settle at a least efficient level (Blau 1970).

Weber also has been criticised by Blau for tending to presume that bureaucracy as a form of organisation implies that those who work within it are bureaucrats. Wrong (1970) endorses the same point, claiming that armies, factories and hospitals may be bureaucracies in Weber's sense, and that those commanding them may be bureaucrats, but that combat soldiers, manual workers and nurses and interns neither are bureaucrats nor welcome bureaucratic procedures. Confirmation for this is evident in studies by Broadfoot (2000) on teachers, and those of Bolton (2004) and Pollock (2004) on nurses.

Few people consider nurses to be soulless. Many have seen them as angels. What can be soulless is the insistence of ministers and of top levels of government on intensification of the labour process, and Taylorist surveillance in teaching and medical care, without rethinking the paradigm of what essentially remains Fordist mass provision of education and health within Weberian bureaucratic hierarchies. When Alfred Sloan at General Motors introduced the multi-divisional professional management that Henry Ford long resisted, this managerial version of Fordism became the dominant 20th century paradigm in production and services in both the private and public sectors. Some key similarities and difference between Ford's, Sloan's and Weber's paradigms of organisation are outlined in Fig. 4. The common theme in all three is an organisational logic of maximising volume throughput and an operational logic of maximal division of labour and performance surveillance.

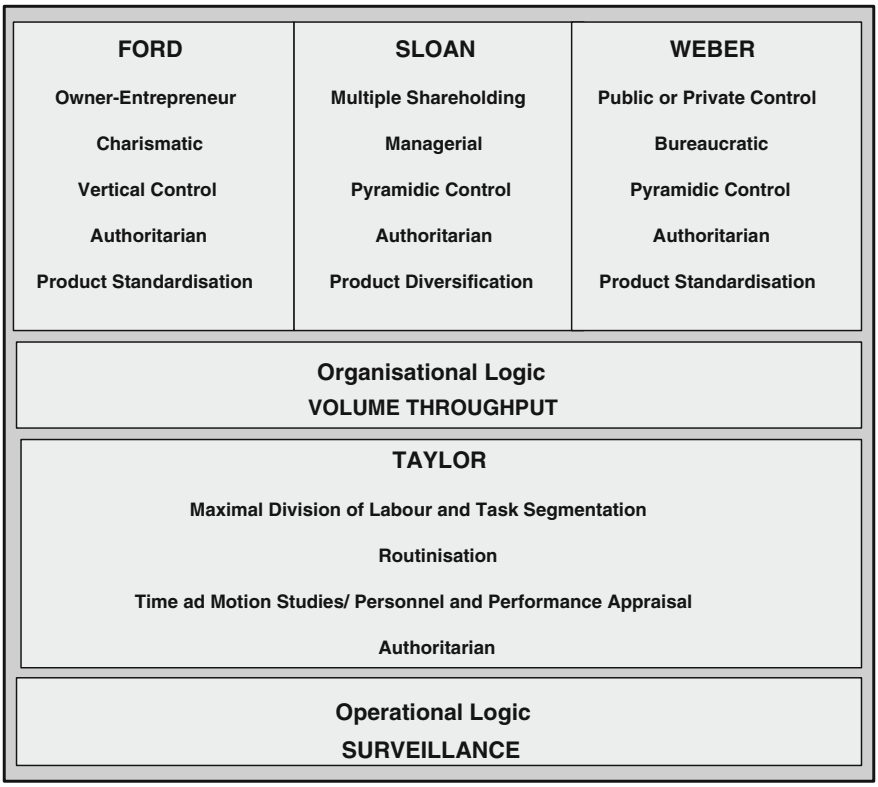

Fig. 4 Ford, Sloan, Weber and Surveillance. *Source* Own formulation

6.2 Relational Coordination and Psychological Contract

By contrast, what we submit is needed to transcend Fordist and Weberian bureaucracy both is relational coordination and psychological contract as a means of achieving not only the economic efficiency of lean production as in the Toyota Production System but also social efficiency in the sense of the wellbeing of both patients and health professionals.

Although Japanese literature on lifetime employment for core workers and the mutual advantage of *kaizen* rarely refers to theories of psychological contract (Oliveira and Holland 2016), they embody it. This is not only in the sense that, as in psychological contract theory (e.g. Rousseau 1998; Guest 1998b) the commitment to lifetime employment and the *zen* of mutual advantage in Japan for core workers is tacit rather than explicit, symbolised in most cases only by a handshake. But also, as in Fig. 4, that lifetime employment in Japan since the early 20th century has been accepted at the highest level by management, whereas psychological contract in western literature is interpersonal, and not even group based at operational levels.

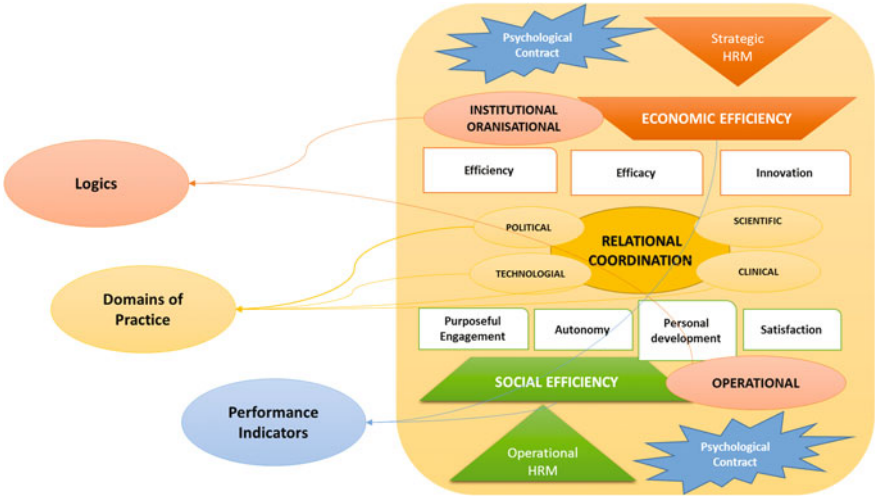

Fig. 5 Relational Coordination and Psychological Contract. *Source* Own Formulation

In Japan, further, relational coordination is not only integral to relations with buyers and suppliers but also thereby to intra- and inter- organisational politics-hand-in-hand rather than arms' length, and fluent in Hirschman's (1970) 'voice'. As in Fig. 5, it also interrelates scientific, political and operational logics, where the latter are both clinical and technological. Such as, despite many to most Japanese manufacturers investing abroad, not least since the 1985 Plaza Accords, by which Japan agreed to a major revaluation of the yen, Japanese companies have maintained 'mother plants' in Japan by which a technical advance by an R&D division can be tested in terms of technical feasibility before then being recommended throughout the organisation and its subsidiaries both in Japan and abroad in terms of operational logic (Holland 2015).

But where Japanese psychological contract differs is in the lower part of Fig. 5 in that it is less concerned with work-life balance and social efficiency in the sense of the wellbeing of employees, even if there recently has been more concern with this (Oliveira and Holland 2016).

7 Not Learning from Lean: New Public Management

There has been a presumption by some analysts such as by Radnor et al. (2012) that lean management first appeared in British National Health Service in 2001. It also has been assumed by Teich and Faddoul (2013) that NPM reforms in the UK NHS (and, since devolution of health services to Scotland and Wales, in England) offers a template for lean management. Others have claimed that NPM has has become a

new paradigm in both theory and practice for management in public sector services (e.g. Hood 1991, 1995; Levy 2010; Pollitt 2004; Pollitt and Bouckaert 2011).

But New Public Management is not necessarily lean. By 2012, in questioning whether the claim to go lean in the NHS was a panacea or a fad, McIntosh and Cookson (2012) found that lean management structures within the NHS were notional, existing only in theory. Nor was going lean in the NHS the main agenda of the Thatcher governments in the 1980s nor of the Blair governments from 1997 rather than their presumption that a flexible private sector always is more efficient than inflexible public sector bureaucracies. The explicit logic was the introduction of an 'internal market' to the health service, and also out-contracting services which had been internal to hospitals or health centres. It was claimed that this would raise quality and widen freedom of choice (DHSS 1983; Department of Health 2004). Its implicit logic was that with more out-sourcing, and shorter term contracts, the power of professional associations and trades unions in the National Health Service would be decreased (Le Grand 1997).

Moreover, as indicated in Fig. 5. NPM in the British NHS has revealed conflicting rationalities between government insistence on more performance criteria in health provision and opposition to this from health professionals concerned that these are compromising the quality of medical care. Criticism of the reforms for lack of consultation on how they have been introduced has persistently been voiced by the British Medical Association, the Royal Colleges of Nurses; the Royal College of General Practitioners and the Royal College of Midwives (Leys and Player 2011). Combined, in 2016, with the first strike by doctors in the English NHS for 40 years, other than for emergency or high risk patients, when the government demanded that junior doctors and other staff be available to work a seven day week with no regard for work-life balance and also for no increase in pay (Holden 2016; Johnson 2016).

The explicit logic of the NPM reforms was market based performance criteria. But their implicit logic has been Weberian in terms of pyramidic top-down authority, Fordist in its preoccupation to increase patient throughput to reduce unit costs, and Taylorist in terms of constant surveillance of performance and outcomes (Oliveira and Holland 2007). While increased layers of surveillance, often by non-medical staff, had not increased efficiency but had trebled administrative costs as a share of total costs from under 5 % to over 14 % (Leys and Player 2011) with a commitment from the government in 2011 to reduce this but which, by 2016 had not been fulfilled.

One of the reasons for this major increase in costs after the NPM reforms was not only by hiring line managers with little or no experience of health management to monitor health professionals, but also the costs of outsourcing. For example the eye specialist unit in the Radcliffe Infirmary in Oxford was told that it had to oursource routine cataract operations. But while it cost the eye hospital £65 to perform each cataract operation, the private contractors were being offered £800. This meant that outside contractors could be paid between £450,000 and £500,000 a year. Consultant eye surgeons employed by the NHS at the time were paid £60,000 a year (Monbiot 2003).

This not only increased costs. There also were negative implications for the quality of care and for training. Such as that the Radcliffe had used routine cases to introduce apprentice surgeons to cataract techniques before bringing them onto cases which were more complex. But the routine cases now were to be out-sourced. Moreover, NHS surgeons operated on only one eye at a time for cataracts, in case an infection left a patient completely blind. To increase economic efficiency, the government ordained that outside contractors could operate on both eyes at once (Monbiot, ibid).

Another case of negative outcomes from out-sourcing was in cleaning and hygeine in NHS hospitals. Hospitals always have to cope with the risk or reality of cross-infections, whatever the rigour with which nursing or other medical profesionals seek to avoid them. But in NHS hospitals, after NPM 'reforms', they increased significantly because of out-contracting of cleaning and its subjection to Taylorist criteria. To increase their internal rate of return, contractors limited the disinfectant which cleaners could use and increased the wards they had to clean in a given time, meaning that in many cases they could not change the water or add cleaning fluid over allotted cost, time and motion limits. Cleaners were swabbing different wards with the same bucket of increasingly dirty and infected water. The result was not lean management in the sense of achieving cost reductions through continuous improvement, but an infection crisis in hospitals from the summer of 2003 caused by lack of hygiene, including MRSA which is highly resistant to anti-biotics (Revill 2005).

Some of the hospital management boards in the UK knew what the problem was in the MRSA crisis but could do little about it since out-sourcing was part of the government's inflexible national strategy for health. Further, in its initial response to the hygiene crisis, rather than restoring responsibility of hygiene to nursing staff, similar to the Toyota commitment to fault free production at working group levels, the government mirrored the Sloan version of Fordism by appointing new national, regional and local hospital 'hygiene managers', quickly dubbed 'health commissars' by the national press.

Several of these higher level hygiene managers' claimed that they could not find evidence of lack of hygiene due to out-sourcing of cleaning. But this was because they alerted a hospital in advance of the forthcoming date of their inspection in which case its management committed all available resources to undertake a major but once-off hygiene exercise. The government also recognised an increase in MRSA related deaths only in those cases where they had been directly attributed by coroners. Yet, even on this basis, its National Audit Office recognised that as many as 5.000 persons over and above average mortalty rates may have died from hospital acquired infections in 2004 alone (Revill, ibid).

8 Learning from Lean in Health Services: The US and Sweden

Whether public services can learn from lean in the sphere of production has been questioned by Osborne et al. (2012, 2014) who have claimed that New Public Management is mistaken in drawing on models from private sector manufacturing and there are fundamental differences between manufacturing and services. The main case of Osborne et al. is that production in manufacturing ends with a sale and stops there, of which they give the example of producing and selling a washing machine. Even if there may be service guarantees, the relations with the purchaser relate to the function or dysfunction of the product rather than an ongoing personal or social relationship. Whereas with public services such as in health or education the relationships with patients, pupils and students are ongoing.

Yet, while sharing the concern of Osborne et al. (ibid) that New Public Management has been too focused on production paradigms drawn from the private sector, we nonetheless submit that their distinction between production and services, especially in the case of lean management, is overdrawn. For example, as already indicated from analysis of the ToyotaProduction System, this not only has been concerned with a once-off sale of a vehicle to consumers on a take-it-or-leave-it basis but also allowing them to specify ex ante what features of the vehicle they want. While also assessing ex post whether their expectations of it have been fulfilled. The former only was achieve by the 1990s. But the latter was achieved from the 1940s through personalised door-to-door visits by staff, such as engineers on job-rotation, to determine customers' satisfaction or dissatisfaction, recording their feedback and then feeding this up with the organisation.

Others also have found that there is much that can be learned for public services from lean production in manufacturing. Thus Teich and Faddoul (2013) have explicitly drawn on lean management in the case of Toyota as a model for healthcare. They recognise that the TPS was largely unnoticed either in western health services or manufacturing until 1973 when the oil crisis affected the global automotive industry. They also recognise that early approaches for implementation of lean principles in healthcare were but an exercise to transfer *kanban* principles in order to reduce inventories in hospitals, but that later these also included operational case studies of how to cut wasted time in patient flow.

8.1 Learning from Lean in the US

Teich and Faddoul (ibid) cite several examples of this in the US which we do not replicate in full here both for reasons of length and since these are readily available in their paper which is is on the web and cited in the references to this chapter.

But one of which is the most striking in the case of the Virginia Mason Medical Center (VMMC). In 2002, 30 senior managers from the VMMC travelled for two

weeks to observe the TPS in practice at Toyota. Since when more than 200 employees have toured production plants in Japan. Among the outcomes at VMMC have been an 85 % reduction in how long patients wait for a lab result through cutting wasted time, a major increase in the number of patients treated but cutting wasted time in treatment and lowering annual inventory costs on a *kanban* just-in-time rather than just-in case basis by $1 million.

Other examples cited by Teich and Faddoul (ibid) include drawing on lean in production to enhance emergency services in hospitals and advancing beyond the well established triage system of different priorities for different categories of injuries or other health problems.

8.2 *Learning from Lean in Sweden*

An earlier and less cited example of learning from lean in the sphere of production in hospital management comes from the Karolinska teaching hospital in Stockholm, inspired by its manager, Jan Lindsten. Consciously influenced by the conceptual framework of Post Fordism, and rather than implementing a downsizing programme, Lindsten, commissioned a study of patient flow both into and through the hospital, similar to analysing the flow of work-in-progress in Toyota.

The results showed that average waiting time for surgery was eight months. Surgeons spent as much as two thirds of their time between operations, much of it waiting for a team member, or for an anesthesthetist or even, more simply, for ancillary staff to deliver the patient. Operating theatres for several specialisations were idle for up to a third of normal working hours. Others were over pressured. There was no coordination of patient flow from reference by a doctor through diagnosis to treatment. People were referred to different specialisations and services in an unintegrated manner, needing to make several visits to the hospital on different dates. Which was why waiting lists of up to 8 months were common.

The lean change management programme at the Karolinska Hospital included the following.

1. Two operating theatres were closed, eliminating their fixed costs. Flexible capacity use of operating theatres was introduced on the likely duration of an operation rather than the type of operation. As a result all theatres were segmented in four groups —fast, medium, slow and emergency. This was matched by flexible use of wards other than for infectioious diseases. Underlying this was the principle of clustering ‘families of service’ which was an example of both relational coordination (Gittell et al. 2008), and boundary spanning (Mørk et al. 2011).
2. A single day was scheduled for diagnosis, which all specialists were required to attend. This again emboded both relational coordination (Gittell et al. 2008), and boundary spanning (Mørk et al. 2011). Relational coordination in the sense that one specialist could refer a patient to another the same day. Boundary spanning

also in the same sense, that diagnosis was not only within one specialisation but would be cross referred to others.

3. A new post of 'nursing coordinator' was created whose responsibilities included minimising the number of visits a patient must make and schedule pre-operative preparation and post-operative care by doctors. This introduced the principle of Patient Path Planning and created a career path for senior nurses. Although initially opposed by many doctors, as was the principle of 'same day diagnosis', they came to realise that this was to 'mutual advantage' in the sense that one day rather than several days spent on diagnosis enabled them to spend more time on their clinical work and research. Such new roles also did not involve formal trainng of senior nurses but drawing on their tacit knowledge of what had been causing wasted time between operations, such as lack of ancillary staff to bring a patient to an operating theatre, yet over which they previously had no control.
4. Because of this, and also the principle of treating patient-flow on the Toyota model of cutting wasted time in work-in-progress, the time between operations was cut by up to half. Average waiting time for surgery was reduced from six to eight months to six to three weeks and, in some cases, such as for hip transplants, to as little as 6 days. As an outcome, the patients treated also increased by a quarter since people in the Stockholm area wanted to be treated at Karolinska which had become 'lean' by cutting wasted time and more fully utilising skills and fixed resources. This was not by introducing market based performance criteria into the hospital, nor a conscious aim to compete against other hospitals. But simply the outcome of being 'leaner' on a Post Fordist basis (Kaplinsky 1995).

9 Implications and Suggestions for Future Research

If health reforms are top-down within a Weberian hierarchy they can be oligarchic and soullessness in a manner that Weber himself deplored. If they are Fordist in concern only to gain greater throughput, they risk diminishing both motivation and the quality of service (Oliveira 2007a, b; Oliveira and Holland 2007).

9.1 Skill Enhancement and Skills Path Planning

Whereas potential for enhancing psychological contract, social efficiency and relational coordination can be derived from the previously cited example of the Karolinska adoption of promotion of senior nurses as coordinators of Patient Path Planning but also identifying Skills Path Planning.

Implicitly, skill recognition happens every day. Surgeon X asks for Y to assist in what clearly is going to be a difficult operation. A head of department needing a

substitute for a teacher who cannot take his or her class will call A or B to take it knowing that they will cope well or more than well. But the recognition often is tacit in the sense that X may say no more than 'make sure A can be here for the operation' or 'I'll ask B to take the class'. In the Karolinska case, the explicit adoption of Patient Path Planning and the new position of 'nursing coordinator' enhanced both economic efficiency and social efficiency for the nurses concerned by enabling them to extend their clinical skills in management skills.

Yet such a career path for senior nurses in terms of organisational logic also could include the operational logic of surgery itself. A nurse or operating theatre assistant may have 7, 10 or more years' experience of a particular operation such as appendectomy. An experienced surgical nurse may be better—if informally—qualified from experience in terms what is needed for a successful minor operation than a novice surgeon trained only in its explicit logic.

9.2 Job Redesign and Role Enhancement

Formally recognising the surgical skills of nurses who are not qualified as doctors would challenge hierarchy, overt rules and explicit norms. Yet, as with the new post of 'nursing coordinators' at Karolinska, it also could liberate surgeons from many routine operations, enable them to use their own cumulative skills on more complex cases, and give more time for research or their own work-life balance.

It would need skill evaluation and assessment by due and agreed procedures, and also patient consent. Yet, if this were the difference between six months waiting for an operation, or six weeks, or even, or, in the case of Karolinska, six days, many patients could be glad to consent. Hierarchy in one sense could be maintained, even if in a more flexible context, to the degree that a consultant or senior doctor would need to decide what is or is not a routine operation. But, by the same token, it would be more likely that patients would in such cases consent it they previously had met such a consultant or senior doctor with the senior nurse and who, face-to-face, endorsed his or her competence and skill.

Such consultants or senior doctors also could be 'on call' in the vicinity in the event of the surgery proving more complex, or the patient's condition hazardous. Nor should it be presumed that reaction from professional associations representing doctors and consultants would be uniformly negative. As Bolton (2004) has pointed out, within their own 'professionalisation' project, UK nurses are taking on tasks normally associated with the role of junior doctors. But without either formal recognition of this or being compensated for it.

Rather than being haphazard, such recognition of skills, and its relation to Skills Path Planning could be by a different form of assessment procedure. Rather than line managers without medical experience, as in NPM in the UK, deciding whether top-down performance criteria had been met, it could based at operational levels and be assessed by medical professionals. As on the lines of such an assessment procedure as outlined in Fig. 6.

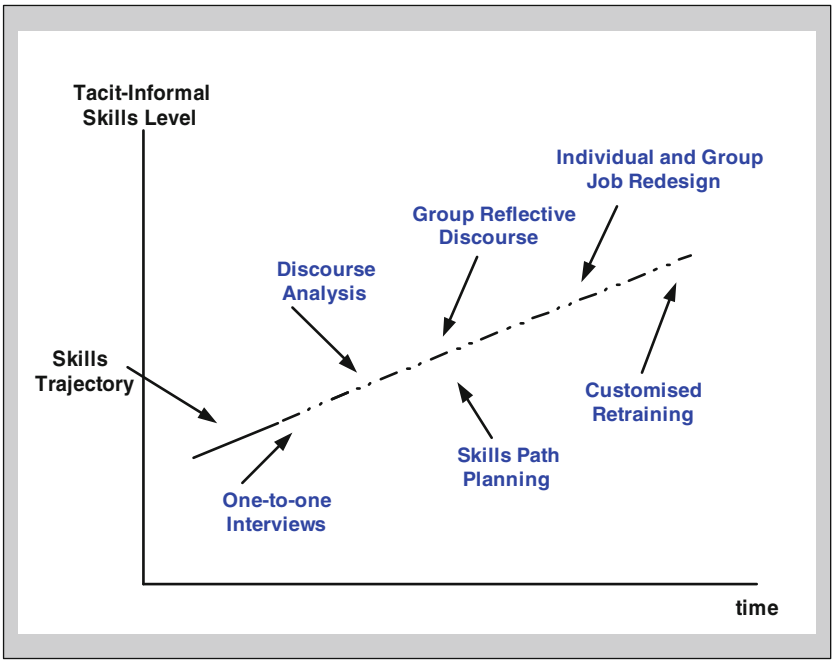

Fig. 6 Skill Assessment and Skills Path Planning. Own formulation

9.3 Dialogue and Job Redesign

Also, job redesign normally is management prerogative determined top-down in terms of either organisation or operation fit. Yet, self-directed work redesign within groups at operational levels is different and may be as or more fulfilling than a formal promotion if they themselves are able to contribute to the redesign. This is consistent with Fincham and Rhodes (1999) recommendation that:

> Meaningful redesign must be interactive. Employees' involvement should amount to more than just passive consent… Workers' input and socio-technical principles have to be represented throughout the design process—particularly in the early stages when decisions are taken that have a constraining influence further down the line (Fincham and Rhodes 1999, p. 310).

What this implies is an extension of individual and group reflective practice in Argyris and Schön's (1974, 1978, 1996) sense. It is not how individuals or groups of employees can better fit or fulfil a job design determined by standardised definition of job-fit, but how they can contribute to redesign of work methods from base up through dialogue surfacing their tacit knowledge, latent abilities and implicit skills. For, as Ambrosini and Bowman (2001) have observed, improvement in methods of work operation often are displaced not because workers at a lower level

do not know what is not working, or going wrong, and how it could be put right but because no one from on high ever asked them.

Rather than being finite and 'closed' in the sense that the design already has been approved at the top and 'should' be adopted below, such dialogue should allow for the lateral thinking and insight from previous tacit knowledge and implicit learning which can be surfaced through dialogue (Nonaka 1994a, b; Nonaka and Takeuchi 1995; Baumard 1999; Ichijo and Nonaka 2007).

This is a classic Tavistock human relations approach, able in principle to meet Mintzberg's (2004) concern that this disappeared in the 1990's. But with the difference that at operational level, whether for a division, a plant, branch or other workplace it offers both the *zen* of mutual advantage and thereby the *kai* of continuous improvement. It is not only observing what workers or line managers actually do, and how they modify procedures in their own informal manner (Guest 2003), but explicitly asking them to draw on experience to propose new methods of work operation. It is consistent with McKinley and Taylor's (1996) study of self-managing teams replacing bureaucratic control. It also is consistent with Oldham's and Hackman (2005) Job Characteristic Model, combining task and skill variety with task identity and significance, relative task autonomy, the meaningfulness of work and feed-up from the base and operational levels rather than only feedback on performance of a top-down organisational design.

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Examination of Service Quality Gaps: Evidence from State Bank of India

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Abstract The present research paper deals with measuring service quality of State Bank of India on customer satisfaction. The study is based on SERVQUAL dimensions, a diagnostic model developed by Parasuraman et al. (J Retail 64(1):12–40, 1988), which measures customers' expectations and perceptions of quality of banking services. The research tends to evaluate the significant difference in satisfaction with service quality of banking services through expected and perceived services on SERVQUAL dimensions. Self-administered pre-structured and close-ended questionnaire was used to solicit responses of 300 customers of the leading public sector bank who have also account in any other bank. This present study makes empirical analysis of collected data through SPSS 21 software by different statistical tools like Reliability test for judgment of internal consistency of collected data and paired t test. The study concludes that neither urban nor non-urban branches of the studied bank supersede the other branches in all five dimensions of service quality. It, further, infers that close monitoring of the quality can improve customer retention and their trust on public sector banks.

1 Introduction

Banking is a service industry which spans across almost all demography. With the changing times and fragile loyalties, banks are trying hard to keep their customers happy with innovative technological applications integrated with old-age brick-and-mortar banking. Being in an industry catering to the millions, banks are constantly offering new products to satisfy their diverse customer bases with varied tastes and preferences. In recent years, internet banking is one of the products which

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the banks are offering to their customers to ensure customer satisfaction along with improved business. The internet banking or online banking is a win-win solution for both the banks and their customers. The customers are advantaged because of the convenience, flexibility and literally 24-h banking solutions in their hands and the banks get benefitted because of lower operating costs, wider geographical reach and reduced customer pressure on their branches. Like other financial institutions, the banking institutions, are also facing a diversified market that is changing quickly. New innovations are being introduced and also having a fear of economic uncertainties. In developing countries, it is very important that banks decide the factors of service quality, which are pertinent to the customer's satisfaction process, as with greater than before competition, with the start of international banking. Better service quality typically can help to get higher market share and better returns (Slu and Mou 2003). It is desirable for service providers to recognize what attributes consumers utilized in their assessment of overall service quality.

2 Survey of Existing Literature

The major reason for customers to choose banks for investment of funds is because of the dependability and reputation of banks. Banks always promise customers a high level of security during transactions. Banking service can increase customers' confidence and trust if employees are able to provide appropriate service to each customer. For instance, understanding the needs of each individual customer, such as knowing the customers' expected retirement age, annual income, and hobbies are required to help provide a good match of insurance and fund products for customers. Assurance is the knowledge and courtesy of employees and their ability to inspire trust and confidence. Bank commitments are important, as customers may save a large sum of money in banks. For complicated products such as insurance, funds, and margins, employees must provide a clear explanation of each product to customers, so that customers can feel confident about the services provided by banks. The final dimension is empathy, which represents the individualized attention that firms provide to its customers. Employees who show understanding of customer needs and are knowledgeable to solve customer problems are success factors for the service industry. Friendly customer service pleases customers when they walk into a bank. The purpose of this dimension is to retain customers to keep using the bank service (Van Iwaarden et al. 2003). Customer satisfaction provides an essential link between cumulative purchase and post-purchase phenomena in terms of attitude change, repeat purchase and brand loyalty (Churchill and Surprenant 1982). Service quality has a positive influence on customer satisfaction (Yee et al. 2010). Customer satisfaction is defined as the attitude resulting from what customers believe should happen (expectations) compared to what they

believe did happen (performance perception) (Neal 1998). Satisfaction reinforces quality perception and drives repeat purchases. Zaim et al. (2010) found that tangibility, reliability and empathy are important for customer satisfaction, but Mengi (2009) found that responsiveness and assurance are more important. Siddiqi (2010) examined the applicability of service quality of retail banking industry in Bangladesh and found that service quality is positively correlated with customer satisfaction; empathy had the highest positive correlation with customer satisfaction, followed by assurance and tangibility. On the other hand, Lo et al. (2010) found that empathy and assurance had the highest influence on customer satisfaction in the Malaysian retail banking industry. Arasli et al. (2005a) found that reliability had the highest impact on customer satisfaction. A number of studies have identified the dimensions of service quality as the antecedents of customer satisfaction. Kotler and Armstrong (1999) preach that satisfaction is the POS—purchase evaluation of products or services taking into consideration the expectations. Researchers are divided over the antecedents of service quality and satisfaction. Whilst some believe service quality leads to satisfaction, others think otherwise (Ting 2004). The studies of Lee (2000), Gilbert and Veloutsou (2006); Sulieman (2011) and Buttle (1996) suggest service quality leads to customer satisfaction. To achieve a high level of customer satisfaction, most researchers suggest that a high level of service quality should be delivered by the service provider as service quality is normally considered an antecedent of customer satisfaction. As service quality improves, the probability of customer satisfaction increases. Quality was only one of many dimensions on which satisfaction was based; satisfaction was also one potential influence on future quality 2 perceptions (Clemes 2008). Service quality is an important tool to measure customer satisfaction (Hazlina 2011). According to Parasuraman et al. (1988) service quality is the customers' judgment of overall excellence of the service or the difference between customers' expectation and the actual service performed or perceived. Gronroos (1984) defines perceived service quality as a consumption process in which the customer is part of the service process that leads to an outcome or result. The way the customer perceives the service process at the time of the service is more important than the outcome of the service. The customers' expectation and perception of the service becomes important when the customer thinks back to see if the perception exceeded the expectations (Siu and Cheung 2001; Kang and James 2004). Parasuraman et al. (1988) developed a service quality model and termed it as gap model. The gap model is about giving managers the tools to improve service quality. The consumer gap is the difference between the customers' expectations of the services and the perception of the services. To measure it a 22 item scale called SERVQUAL (Service Quality) was used. SERVPERF (Service performance) is similar to SERVQUAL, in that it uses the same 22 item scale to measure service quality, but differs in the number of times the service quality is measured. SERVPERF (Cronin and Taylor 1992) uses the 22 item scale once to measure the perception of service quality; whereas the SERVQUAL uses the scale twice once to measure the expected service quality and once to measure the perceived service quality.

Understanding of select literature review

Study	Year	Objectives	Methodology and findings
Customer perception on service quality in banking sector: With special reference to Indian private banks in Moradabad region: by *Jain, V, Gupta S, Jain S*	Feb, 2012	To understand the perception of service quality in banking sector and to evaluate how it helps in enhancing the reputation and attracts customer loyalty	SERVQUAL tools (five dimensions); compared the individual scores with average mean value scored by private banks. Reliability and responsiveness are most relevant factors
Impact of service quality in commercial banks on the customers satisfaction: An empirical study: by *Ghost F S, Gnanadhas E*	Oct, 2011	To understand various customer perceptions about service quality factors in the banking industry and satisfaction level towards the bank	Data were collected on demographic and analyses the impact of these service quality (five dimensions of SERVQUAL). Study concludes saying about the existence of a close bond between the service quality factors and the customer satisfaction level. It also found that the impact of the service quality factors on customer satisfaction was varying with demography of the customer
Service quality delivery and its impact on customer satisfaction in the banking sector in Malaysia by Munusamy J, Chelliah S and Hor WaiMun	Oct, 2010	To study focuses on the measurement of the customer satisfaction through delivery of service quality in banking sector in Malaysia	Data collection through random respondents of the general population. Study found that assurance has a positive relation with customer satisfaction. Tangibles include the appearance of the company and high positive relation with customer satisfaction. Study also found that no relation between empathy and satisfaction

According to Badri (2003), assessment and application of the SERVQUAL model in measuring service quality in information technology centre. Their research gap they used a larger sample which also differs from other studies that addressed the dimensionality problem of the IT centre-adapted SERVQUAL instruments. According to Avkiran (1994), service quality instrument developed in Australia to measure service quality in retail banking as perceived by customers (BANKSERV). It was adapted from SERVQUAL to specifically suit the Australian banking industry.

Wang and Hing-Po (2002) depicts found in Chinese banks that reliability was the key drivers of the product quality and followed by tangibility. They argued in favor of improving service quality and product quality to build and enhance company reputation. Arasli et al. (2005b) demonstrated the service quality perceptions of Greek Cypriot bank customers. They found that the expectations of bank customers were not met where the largest gap was obtained in the responsiveness-empathy dimension. According to van Zanna et al. (2009) the service quality of the customer contact centers of various organizations in Netherlands. They modified the SERVQUAL scale and found that perceived customer contact centre quality consisted of seven dimensions: reliability, empathy, customer knowledge, customer focus, waiting cost, user friendliness of the voice response unit, and accessibility. According to Rai (2009) identified tangibility (seating, lighting, signage, and parking) competence (Knowledge and ability), responsiveness (willingness and adherence), safety (confidence), communication (content and quality) and understanding customers (approach towards customer) as important dimensions of service quality. Kumar et al. (2010) undertook a study involving 22 item of SERVQUAL with additional 4 items relating to the dimension of convenience. The response was taken related to expectations and perceptions of the customer. Negi (2009) pointed that, the model to determine perceived quality in the Telecommunication industry and found out that reliability, empathy and network quality proved to significantly effective in contributing to overall service quality. According to Ray and Ghosh (2014), the high growth in internet banking is constantly creating different areas for service and banks will require initializing major improvements in internet service quality (I-SQ) to maintain minimum customer satisfaction. The quality of service can be evaluated through constant feedback mechanism for different service dimensions and this can help the banks to perform more effectively and efficiently.

3 Objectives of the Study

This study can be ascertained by the following Research objectives:

1. To discuss the impact of State Bank of India'sbanking service quality on client satisfaction.
2. To analyze SERVQUAL dimensions on customer satisfaction.

4 Limitations of the Study

1. This study is limited to the study of expectations and perceptions of customers having an account in SBI.
2. This study does not analyze longitudinal impact of service quality on customer satisfaction.
3. The responses are limited only to Arambagh and Kolkata in West Bengal.

5 Methodology

Data for the study undertaken has been collected from the primary source, which is again collected through pre-structured questionnaire. The sampling method is random sampling. Based on SERVQUAL dimensions 22 questions were set up and to make the analysis more transparent. The total sample is 300. This sample comprises of 120 respondents (60 from urban and 60 from non-urban). The service quality is assessed based on Parasuraman et al. (1988) five dimensions namely, tangibility, reliability, responsiveness, assurance and empathy. The research has been conducted in the region of Kolkata and Arambagh, West Bengal, India.

5.1 Measures and Analysis

Primary data were collected using a predetermined personally administered questionnaire. The questionnaire was designed to capture sample characteristics and the objectives. It has a mix of quantitative and qualitative feedbacks. For the quantitative feedbacks, a five point Likert scale from 1 to 5 was used, where 1 was for the lowest satisfaction level and 5 was for the highest satisfaction level. Collected data has been analyzed by SPSS 21 using paired t-test to identify the significance of difference in average impact of internet banking service quality on client satisfaction. The structured questionnaire contained SERVQUAL dimensions were grouped and designed to measure the respondents' expectations and perceptions regarding quality of services offered by the bank. Descriptive statistics analysis was used to measure clients' expectations and perceptions scores. Paired t-test was carried out to test the significant difference between the two means of expectations and perceptions of the services offered by the bank.

6 Analysis and Findings

For internal reliability of the questionnaire was tested by Cronbach's Alfa. If Alfa value greater than 0.70, it depicts that higher internal consistency in the measured dimension. Here in the table Cronbach's Alfa is 0.877. It is clear that the questionnaire used in this study had strongly internal reliability and it could be used with confidence for the application of next statistical analysis and interpretation (Table 1).

Table 2 depicts the mean difference scores, *t* values and the significance obtained through the evaluation of each service dimensions. The gap scores

Table 1 Reliability statistics

Cronbach's alpha	Cronbach's alpha based on standardized items	No. of items
0.877	0.843	22

Table 2 *t* Test for customers' perception and expectation in SBI Bank (urban and non-urban Branches)

SERVQUAL dimensions	Expectations mean (EM)	Perceptions mean (PM)	Gap (PM-EM)	*t* value	Sig.
Responsiveness					
Instant service(on demand)	3.7881 (3.6551)	4.3431 (2.3711)	0.555 (−1.284)	7.043 (−4.211)	0.002 (0.000)
Strongly positive service attitude	3.2924 (4.3211)	4.3745 (3.2201)	1.0821 (−1.101)	6.244 (−5.331)	0.001 (0.003)
Always be willing to help customers	3.7661 (3.2235)	4.1101 (2.3122)	0.344 (−0.1118)	7.543 (−3.542)	0.001 (0.002)
Treat customers with politely	4.3221 (4.1324)	4.2103 (3.7098)	0.1882 (−0.4226)	5.341 (−8.613)	0.000 (0.000)
Establish customer confidence in banking service	3.3233 (4.0873)	4.2267 (2.8943)	0.9034 (−1.193)	8.354 (−4.449)	0.000 (0.000)
Demonstrate professional knowledge and capabilities	2.4332 (4.2144)	4.6653 (3.5686)	2.2321 (−0.6458)	7.542 (−3.896)	0.001 (0.003)
Provide true and accurate information regarding the service contents	3.1326 (4.8941)	4.9832 (3.6372)	1.8506 (−1.2569)	7.553 (−8.321)	0.000 (0.000)
Tangibles					
Comfortable waiting lounge	3.4532 (4.9353)	4.3432 (3.1746)	0.8878 (−1.7607)	6.122 (−7.635)	0.000 (0.000)
Neat and clean internal environment	3.3244 (4.7423)	4.5543 (3.2313)	1.2299 (−1.511)	5.142 (−8.518)	0.002 (0.001)
Account opening procedure is simple	3.2242 (4.0361)	4.6554 (2.4201)	1.4312 (−1.616)	5.321 (−7.448)	0.000 (0.002)
Staff appearance is well dressed	2.3298 (4.5248)	4.2122 (3.2321)	1.8824 (−1.2927)	6.112 (−6.912)	0.000 (0.000)
Proper maintenance of equipment and instruments is evident	3.2321 (4.0361)	4.5248 (3.4201)	1.2927 (−0.616)	7.211 (−7.272)	0.001 (0.000)
Assurance					
Reasonable cost and price	3.4201 (3.8941)	4.0361 (4.2321)	0.716 (0.338)	7.432 (3.232)	0.000 (0.001)
Communicate and interact with customers to understand their needs	4.3325 (3.9243)	4.5248 (4.2765)	0.1923 (0.3522)	8.253 (2.762)	0.000 (0.001)
Professional knowledge and ability to handle customers problem	4.1832 (3.8433)	4.2952 (4.3324)	0.112 (0.4891)	7.341 4.657	0.002 (0.000)
Empathy					
Communicate and interact with customers to understand their needs	3.5222 (4.0361)	4.2331 (4.5303)	0.7109 (0.4942)	6.122 (6.145)	0.000 (0.000)

(continued)

Table 2 (continued)

SERVQUAL dimensions	Expectations mean (EM)	Perceptions mean (PM)	Gap (PM-EM)	*t* value	Sig.
Speak politely and give smiling service	4.3342 (3.7098)	4.6513 (4.1324)	0.3171 (0.4226)	5.142 (7.528)	0.001 (0.000)
Customer interests as the priority concern	3.1152 (2.8943)	4.1087 (4.0873)	0.9935 (1.193)	5.321 (5.981)	0.000 (0.001)
Reliability					
Staffs are trustworthy	3.3219 (3.5686)	4.6554 (4.2144)	1.3335 (0.6458)	6.032 (7.641)	0.000 (0.000)
Service windows are enough	4.2223 (3.2215)	4.2263 (4.3224)	0.004 (1.1009)	5.202 (3.712)	0.000 (0.001)
Perform well right from the first time	3.4327 (2.4398)	4.1976 (3.7672)	0.7649 (1.3274)	5.022 (7.881)	0.002 (0.000)
Carry out what they promise	4.0221 (3.2498)	4.2243 (4.2210)	0.2022 (0.9712)	4.033 (8.116)	0.001 (0.000)

Data depicts in the parenthesis reflects non-urban areas
Data collected through survey method Dec 2015 to Feb 2016

(PM-EM) for each dimension was calculated by subtracting the perception and expected means. Above table also depicts that for gap scores of urban branches dimensions like *Responsiveness, Tangibles, Awareness. Empathy, Reliability* are positive as well as *t* values are also positive and *P* values are all significant as $P < 0.05$. Again for non-urban branches dimensions like Responsiveness, Tangibles gap scores are negative and *t* values are also negative and *P* values are also statistically significant i.e. $P < 0.05$. It depicts that for nonurban branches customers are significantly less satisfied on these dimensions when compared with the same dimensions in urban branches. Whereas *Tangibles, Awareness, Empathy and Reliability* gap scores are positive and *t* values are also positive and *P* values are statistically significant i.e. $P < 0.05$. It indicates that non-urban customers are, on an average, significantly more satisfied on these dimensions.

Service quality is a vital part for any organization for it attracts more customers and customer loyalty. Service quality is most important and action like rapid response, efficient staffs, commitment, right service at right time, quick complaint solution, competencies, trustworthy, awareness, accessibility, rigidity, navigations, communications, web customizations are most vital factors to increase satisfaction. Urban branches are more efficient as most of the branches have better infrastructures like automated pass book vending machine which reduce customers waiting time and zone of tolerance, efficient official staffs, quick and error free services, quick response for customer queries etc. Whereas in the non-urban branches lack of infrastructures like *willingness to help customer, high rate of waiting time, internet link failure, lack of internet banking facilities, lack of waiting room are observed*; and customers are also not aware to use updated technology (Automated vending machine for pass book).

7 Conclusions

The present research concluded that service quality is one of the most distinctive factors in the private sector banks when compared with even leading public sector banks like State Bank of India. Banking sector now-a-days has a compelling demand for improvement to survive the substantial competition in present day's scenario. The managers should monitor and periodically assess service quality in their banks and recognize its importance in developing and maintaining enduring relationship with their customers as crucial parameters leading to increased performance. Recruit employees for better services who are well versed in local language, increase number of branches nationwide including in rural area, improved infrastructure i.e. adoption of advanced technology. Now-a-days, CRM is one of the main key factors of all organizations. Efficiency of managing customer relation creates more customers as well as results in enhanced customer retention and trust.

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Application of Fuzzy QFD for Environmentally Conscious Design of Mobile Phones

S. Vinodh and K.J. Manjunatheshwara

Abstract Modern manufacturing organisations are advancing towards sustainable way of production, appreciating the need to conserve energy and resources. Further economic and societal orientations of sustainability has made the practice more significant. Scope for applying sustainable manufacturing to varied products have been recognised. Consumer electronics involves huge interactions of energy and resources and hence has attracted a lot of attention among researchers globally. It is necessary that sustainable development of different consumer electronic devices is given utmost importance. Manufacture of mobile phones needs to be focused as it is characterised by market dynamism. Hence, development of mobile phones offers considerable challenge to researchers. In this direction, a case study has been discussed regarding sustainable development of mobile phones using environmentally conscious design method. Fuzzy Quality Function Deployment (QFD) is a design technique which can be used to create a multi objective model. By applying this method, the interests of customers has been held integral with sustainable design of mobile phones. A more generic model has been created allowing practitioners to easily adapt it in real conditions.

1 Introduction

With the regulations becoming more stringent, organisations are forced to meet demand for green products. Modern manufacturers are hence adopting sustainable ways of manufacturing. Sustainability is incorporated into the product primarily from design stage. Quality Function Deployment (QFD) is a distinct design procedure which takes into account the necessities of the customers. However the vagueness in customer interest is not addressed by crisp QFD. Judgements based on vague customer requirements might result in inaccurate results. In order to tackle

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the problem of linguistic uncertainties, fuzzy QFD is used. Fuzzy QFD for eco-design is illustrated with a case study of mobile phones.

The scope of this study includes:

- Identification of Voice of Customers (VoCs), sustainability factors and design methods in meeting sustainability requirements of mobile phones.
- Prioritisation of factors which ensure eco-friendly design of mobile phones based on customer requirements concerning mobile phones.
- Prioritisation of sustainable design methods based on prioritised sustainability factors.

2 Literature Review

Literature has been reviewed with the objective to identify scope for eco-design of mobile phones using fuzzy QFD. In this regard, literature review under the following subsections have been carried out.

2.1 Literature Review on Environmentally Conscious Development of Mobile Phones

Wu et al. (2008) identified the scope for the deployment of Life Cycle Assessment (LCA) to measure environmental impacts due to mobile phones. The authors conducted LCA of two different models of Mobile phones of which one a slightly older one. The new model was found eco-effective when compared to older model, due to its miniaturization. Proportion of harmful contents remained the same. The authors alarmed an urgent necessity for developing environmentally conscious mobile phones. This study provided useful insights over the scope for eco-design of mobile phones.

Bereketli et al. (2009) emphasized the complexity that the modern mobile phone manufacturers were facing due to conventional manufacturing methods. The authors identified the demand for green products. A Quality Function Deployment for Environment (QFDE) was developed by including ecological aspects into conventional QFD. The authors identified several Customer requirements and translated them to engineering attributes. The engineering attributes were grouped into Mobile phone attributes and Environmental attributes. From the study, Environmental attributes were found to have more significance than product attributes.

Moberg et al. (2014) determined challenges in full LCA of Information and Communication Technology products and hence conducted a study to simplify the process. The authors dealt with a mobile phone case study. Different scenarios were

tried. The authors found that excluding impact categories would lead to information loss. The authors suggested to use input-output data for the facilitation of simplified LCA. This study provided insights over assessment of environmental impacts of mobile phones and initiated required action during the design stage of product development.

Wu and Ho (2015) identified the need for incorporating sustainability aspects in the early design stage of products. The authors conducted a case study on eco-design of mobile phones. A fuzzy based green QFD was proposed. Voice of customers was recorded and was mapped with engineering characteristics or the component specifications of mobile phone. The authors contributed by identifying the most important customer requirements and important product features. The approach was applied in a single phase and was limited to prioritising the factors. The authors though made suggestions did not arrive at design solutions.

Andrae et al. (2016) conducted a study in a mobile phone manufacturing large electronics industry of China. The authors presented a method of eco-design for easy measurement of environmental attributes and enabled the transition from traditional system of manufacturing to sustainable system. Environmental effects were quantified using Life Cycle Assessment method. The study provided accurate designer information and the method proved to be cost effective.

2.2 Literature Review on Applications of Fuzzy QFD

Lin et al. (2004) found the importance of design process being customer focused. The authors identified drawbacks in traditional QFD approach where vagueness of information collected was not addressed properly. In order to overcome this, the authors proposed fuzzy QFD method. The authors conducted case study of redesigning a digital camera. The authors identified Voice of Customers (VoCs) through surveys, records and interviews. Study of competitor products allowed the authors to identify the technical attributes. Using fuzzy QFD authors could determine critical factors based on fuzzy linguistic judgements by design team members.

Vinodh et al. (2011) identified that the modern organisations are forced to undergo shift from conventional to sustainable manufacturing as there is an increase in demand for sustainable products. The authors emphasized the scope for enabling sustainability through implementation of lean tools and techniques. Different lean tools and their ability to facilitate sustainability were discussed. The authors highlighted a hybrid tool called fuzzy QFD integrated Value Stream Mapping (VSM), which involved an intermediate eco function matrix in between initial and final maps. Fuzzy QFD was used for prioritising improvement strategies. As a validation to this proposed tool, Mohanraj et al. (2015) applied the tool in a camshaft manufacturing industry. An initial VSM was created and wastes in the form of process were identified. The wastes were mapped with identified lean tools. Important lean tools were identified using fuzzy QFD and were incorporated in the manufacturing practice. A final state VSM was prepared and compared with current

state to quantify the benefits. The study provided insights over the usefulness of tool as a sustainability enabler.

Vinodh and Chintha (2011) conducted a study on fuzzy QFD deployment for enabling sustainability. The authors reviewed on applications of fuzzy QFD. A two phase fuzzy QFD was formulated using sustainable performance measures, attributes and enablers identified from literature. A case study of Indian switches manufacturing organisation was reported. The authors identified key managerial implications such as commitment from top management, involvement of workforce and team formation. The results were validated by an expert from the organisation. The authors recommended the application of fuzzy QFD methodology to other similar organisations.

Ayağ et al. (2013) conducted a study to identify the essential requirements to enhance Supply Chain Management (SCM) of a diary industry. The authors carried out the study in two phases. In the first phase, important logistic requirements were identified based on design requirements and in the subsequent phase, the prioritised logistic requirements were used to find important SCM strategies. The authors claimed that approach resulted in customer satisfaction.

Dai and Blackhurst (2012) developed an integrated AHP-fuzzy QFD approach for prioritisation of suppliers. The study was conducted in four phases with each phase providing input for its successive phase. Sustainability requirements were identified and prioritised using AHP. The requirements were mapped with sustainable strategies, in turn the strategies were mapped with purchasing priorities and purchasing priorities with supplier selection criteria and finally supplier selection criteria with supplier contestants. AHP is incorporated into the final relationship matrix to arrive at the best supplier choices.

Yang et al. (2013) conducted a study in an automobile industry. The authors studied factors supporting remanufacturability of parts. The authors followed fuzzy QFD approach in order to incorporate factors during early product design stage. The most important engineering characteristics corresponding to remanufacturing requirements were identified. Factors such as material durability, fastener types and position of parts were found to have more significance. The obtained results were found to be matching with results from prior studies.

Haq and Boddu (2014) conducted a study to identify the most important leagile factors that enhance the performance of the organisation. A food processing industry was chosen for study. Analytic Hierarchy Process (AHP) and TOPSIS methods were used to assign weights to competitive bases and leagile attributes respectively. Leagile attributes were mapped with leagile enablers to find the important enablers using fuzzy QFD. The authors claimed that the methodology would help the practitioners to achieve leagility.

Haq and Boddu (2015) presented a study to assess leanness of an organisation. The authors proposed an integrated TOPSIS and fuzzy QFD method. The weights of lean attributes were computed using TOPSIS. Fuzzy QFD was used to map lean attributes with lean enablers. The study resulted in important leanness enablers. The authors claimed that the method would help in enhancing lean performance of the organisation.

Vongvit (2015) applied fuzzy QFD to case study involving product development using 3D printer. The author identified major customer requirements based on a survey conducted. The author then identified engineering characteristics that are most important in 3D model building. Customer requirements were then mapped with technical requirements. The methodology helped the author to find critical engineering characteristics. Based on the result, the author suggested to improve most important engineering characteristics followed by the next important factor and so on.

It is clear from the literature review that there is substantial scope for researching on the applying eco-design strategies to mobile phones. A quantitative analysis of the factors affecting and determination of design methods has to be carried out. Appropriate strategies to be applied for developing eco design of mobile phones.

3 Methodology

The sequence of steps of methodology is shown in Fig. 1. The methodology starts by an extensive literature review on application of fuzzy QFD for development of mobile phones. Research gap is identified from literature review. Important information such as customer voice, sustainability factors and design methods is identified from literature and with experts' help. Further, the sustainability factors are mapped with voice of customers in fuzzy QFD Phase I to obtain prioritised factors. Based on the results of Phase I, sustainability factors are assigned weights and are

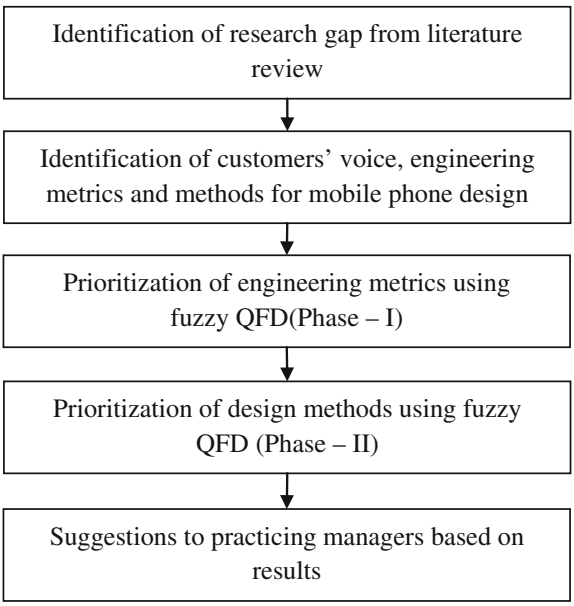


Fig. 1 Methodology

mapped with design methods in Phase II. From phase II, prioritised design methods are obtained. From the results obtained, interpretations of the necessary factors responsible for sustainable development of mobile phones are made.

4 Case Study

The input information were gathered in consultation with experts and from literature review. Usage of fuzzy QFD for incorporating sustainability aspects in early stage design of mobile phones has been discussed in the subsequent sections.

4.1 Identification of Customer Requirements

Important customer requirements were identified from literature and with expert input, weights were assigned to them based on linguistic expressions. Table 1 shows customer requirements and weights assigned to them.

The weights were assigned notations. The weights denote the significance of different customer requirements. The weights were assigned on a four point scale with levels Very important, important, fairly important and poorly important. Customer requirements form WHATs in the first phase of QFD.

4.2 Fuzzy Preference Relation

The problem involves fuzzy QFD applied in two phases. Each phase involves a House of Quality (HoQ) as shown below (Fig. 2).

Table 1 Customer requirements and weights

Sl. no.	Customer requirements	Weights	Notation
1.	Price	Very important	VI
2.	Size and weight	Very important	VI
3.	Post-sale service	Important	I
4.	Reparability	Important	I
5.	Reliability	Very important	VI
6.	Durability	Important	I
7.	Less material usage	Important	I
8.	Energy efficient	Important	I
9.	More recyclable material usage	Important	I
10.	Easy to disassemble	Very important	VI

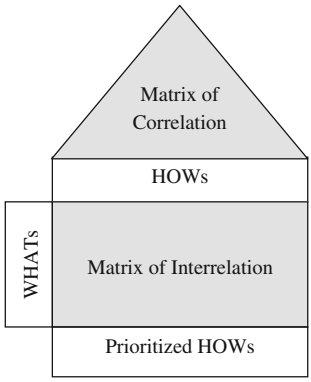


Fig. 2 Format of house of quality

Table 2 Fuzzy numbers assigned to linguistic terms to represent weightages

Importance level	Notation	Fuzzy number
Very important	VI	(0.7, 1, 1)
Important	I	(0.5, 0.7, 1)
Fair important	FI	(0, 0.3, 0.5)
Poorly important	PI	(0, 0, 0.3)

Table 3 Fuzzy numbers assigned to linguistic terms to represent relationships

Relationship level	Notation	Fuzzy number
Strong	S	(0.7, 1, 1)
Medium	M	(0.3, 0.5, 0.7)
Weak	W	(0, 0, 0.3)

After assigning weights to 'WHATs' using linguistic terms, fuzzy numbers are assigned to weightage levels as follows (Table 2).

To represent interrelationships between 'WHATs' and 'HOWs' sustainability factors, fuzzy relationship sets are used as follows (Table 3).

Four levels of correlation among HOWs is represented using fuzzy numbers as follows (Table 4).

Table 4 Representation of levels of correlation using fuzzy numbers

Levels	Symbol	Fuzzy numbers
Strong positive	●	(0.3, 0.5, 0.7)
Positive	○	(0, 0.3, 0.5)
Negative	□	(−0.5, −0.3, 0)
Strong negative	◊	(−0.7, −0.5, −0.3)

4.3 Application of Fuzzy QFD for Mobile Design

HOQ is constructed with essential data and calculations are made using the formula to find importance index. The formula for importance index is as follows (Vinodh and Chintha 2011):

$$II_j = \sum_{i=1}^{n} W_i \otimes D_{ij}, \quad j = 1, 2 \ldots, m. \tag{1}$$

where II_i is the importance index of jth HOW,

W_i is the weight of ith WHAT and
D_{ij} is the degree of relationship between ith WHAT and jth HOW.

Score index is calculated by using the formula, considering the correlations of jth HOW with respect to other HOWs (Vinodh and Chintha 2011).

$$\text{Score index} = II_j \oplus \sum_{j' \neq j} Q_{jj'} \otimes II_{j'}, \quad j = 1, 2, \ldots, m \tag{2}$$

where II_j is the importance index of jth HOW,

$Q_{jj'}$ represents the correlation between jth and j′th HOW.
$II_{j'}$ is the importance index of corresponding j′th HOW.

A final crisp value is found from the score to enable comparison. The formula to obtain crisp value is as follows (Vinodh and Chintha 2011).

$$(\text{Crisp value})_j = \frac{a + 2b + c}{4}, \quad j = 1, 2, \ldots, m \tag{3}$$

where, a, b, c denote lower, middle and upper limits of jth score.

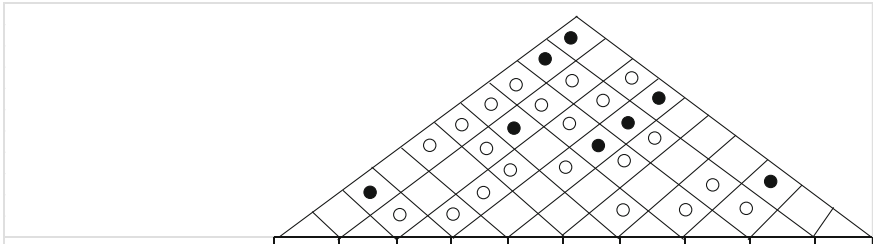
Phase I of fuzzy QFD involves prioritisation of sustainability factors (WHATs) mapped against customer requirements (HOWs). HoQ for Phase I is constructed as shown in Fig. 3. Using the necessary data available from HoQ, the final values are computed to interpret results.

Following methods were identified from literature and with the help of experts for eco-design of mobiles:

Design for Environment (DFE) is an approach that addresses effects of products and processes on environment throughout their life cycle.

QFDE is evolved from conventional QFD technique and contemplates three perspectives of sustainability.

Life Cycle Assessment (LCA) approach evaluates every stage of a product from its cradle to grave. In fact now the idea of product lifecycle has been redefined to be cradle to cradle, considering End-of-Life (EoL) aspects.

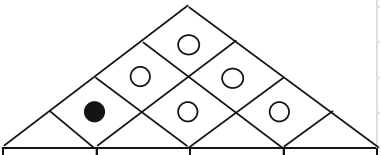


		Minimisation of environmental releases	Maintainability	Potential financial benefits	Material utilisation	Power consumption	Job opportunities	Physical lifetime	Weight	Number of parts	Rate of recyclable material
VI	Price	M	W	S	M	S		W	M	S	M
VI	Size and weight	S	M	M	S	S		M	S	M	W
I	Post-sale service	M	S		W	M	S	M		M	
I	Reparability	M	S		W		M	S	M	S	M
VI	Reliability	M	S				M	S	M	M	
I	Durability		S					S	M	M	
I	Less material usage	S		S	S	M		S	S	M	M
I	Energy efficient	M	M	S	W	S			M	M	
I	More recyclable material usage	S	M	S	S	S			S		S
VI	Easy to disassemble	M	S	M			M	M	M	S	M
Importance index (IIi)		(2.27,5,7.2)	(2.54,5.3,7.4)	(1.96,4.1,5.4)	(1.4,2.9,4.6)	(1.98,4.1,5.4)	(0.92,2.1,3.1)	(2.11,4.5,6.4)	(2.27,5,7.2)	(2.35,5.1,7.2)	(1.07,2.4,4.1)
Score Index		(3.87,16,30.2)	(3.14,12.4,23.4)	(2.66,15.1,30.4)	(3,14.9,31.6)	(1.98,9.9,19.4)	(0.92,7.8,16.1)	(2.91,13.2,26.4)	(2.97,16,33.2)	(3.45,16.1,31.2)	(2.87,10.1,20.1)
Crisp value		16.518	12.835	15.815	16.100	10.295	8.155	13.928	17.043	16.713	10.793

Fig. 3 Fuzzy QFD phase I

Green logistics in the field of logistics and supply chain management is gaining importance over the recent period.

The prioritised sustainability factors (WHATs) were mapped with design methods (HOWs) and a HoQ is constructed as shown in Fig. 4.



		DFE	QFDE	LCA	Green logistics
VI	Minimisation of environmental releases	S	M	S	M
I	Maintainability	M	M		M
VI	Potential financial benefits	M	M	S	S
VI	Material utilisation	M	M	S	M
FI	Power consumption	M	M	S	W
PI	Job opportunities	M			M
I	Physical lifetime	M	S	M	
VI	Weight	S	S	S	M
VI	Number of parts	S	S	M	M
FI	Rate of recyclable material	S	S	M	
	Importance index (IIi)	(2.19,5.15,6.86)	(2.11,5,6.65)	(2.32,5.3,6.25)	(1.48,3.35,4.86)
	Score index	(2.82,10.075,17.5)	(2.764,10.075,17.54)	(2.32,9.155,15.8)	(1.48,7.82,15.14)
	Crisp value	10.118	10.114	9.108	8.065

Fig. 4 Fuzzy QFD phase II

5 Results and Discussions

Fuzzy QFD applied in two phases resulted in prioritisation of sustainability factors in Phase I and design methods in Phase II. The prioritised factors were identified based on the final crisp value calculated from the score with respect to each sustainability factor. 'Weight', 'Number of parts' and 'Minimisation of environmental releases' were found to be the critical factors with crisp values 17.043, 16.713 and 16.518 respectively. Since weight and number of parts of the product corresponds to design, redesigning of the product can be carried out. Prior studies have also signified upon the importance of Minimisation of environmental releases. Sustainability studies can be performed in order to identify potential hazards and measures to control them.

DFE and QFDE were found to be the important design methods with crisp values 10.118 and 10.114. The organisations must consider environmental aspects in every stage of product life cycle, which can be achieved through DFE. DFE guidelines have to be set. QFDE allows organisations to identify appropriate sustainability strategies through design decisions.

5.1 Practical Implications

The study provided insights to practitioners over deployment of sustainable design methods and helped them in decision making. Product designs were reconsidered to diminish environmental hazards, decrease weight and number of parts of the product. Sustainability analysis of the product designs were made to identify potential hazards and action plans were generated to tackle them.

6 Conclusions

The contemporary practitioners are forced to produce sustainable products to comply with legal aspects. There is also an increase in demand for eco-efficient products. In this study, fuzzy QFD is applied for development of mobile phones. Customer voices were recorded and analysed to prioritise engineering metrics. The prioritised engineering metrics were found to be 'Weight', 'Number of parts' and 'Minimisation of environmental releases'. A second phase of fuzzy QFD prioritised design methods and prioritised design methods were found to be DFE and QFDE. Consideration of customer requirements in development of products would eventually lead to customer satisfaction.

6.1 Future Scope and Limitations

Additional customers' voices, engineering metrics and design methods could be included to cope with increasing customer demands and technological advancements respectively.

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From New Public Management to New Public Services: Challenges for Hospital Governance and Lean and Hybrid Management

Teresa Carla Oliveira, Vitor Raposo, Stuart Holland and Francisco Edinaldo Lira de Carvalho

Abstract New Public Management (NPM) in health services has proved increasingly controversial. It has been criticised as Weberian in terms of authoritarian hierarchy, Fordist in its obsession with gaining economies of scale and Taylorist in its surveillance of performance criteria. It has assumed a production and output logic derived from manufacturing, whereas both private and public services differ from this. Nonetheless there recently has been a resurgence of interest in what can be learned in terms of lean management in manufacturing, both in terms of economies of scope rather than scale and of multi-tasked and multi-skilled hybrid management at operational levels. This chapter seeks to inform this by distinguishing operational and organisational logics within institutions and by evaluating alternative models of governance of health, including the scope for New Public Services rather than NPM to reinforce social rights and the degree to which replacing a command-and-control model of hospital management with health professionals as 'hybrid' managers may enable both social efficiency in service delivery and enhance the wellbeing and fulfilment at work of health service employees.

1 Introduction

There has been increasing recognition of the limits of New Public Management (NPM) and the alternative case for a New Public Services (NPS) paradigm. This chapter critiques claims for 'good governance' forwarded by the European Commission, the

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Organization for Economic Cooperation and Development (OECD) and other institutions such as The World Bank. It does so not only on the grounds that such claims by the European Commission have been contradicted by its lead role in the Troika of itself, the ECB and the IMF in imposing austerity policies which are compromising quality health services. But also for their neoliberal presumption, in line with Friedman (1962, 1970, 1980) and the Thatcher and Reagan 'reforms' in the UK and the US, that markets always are more efficient in delivering services (Holland 2015: Holland and Oliveira 2016). Which the IMF also recently has recognised is a rhetoric that has been 'oversold' (Ostry et al. 2016).

Yet, in seeking both to deepen analysis of governance, and to surface findings for health systems and hospital management, the chapter shows that, since the early phases of the European Enlightenment, there was a challenge to the presumption that markets alone could maximise social welfare. As with Adam Smith, who recognised even in his *Wealth of Nations* (1776) that when two or three producers gather together, even for 'merriment' they would seek to conspire against the public interest by a contrivance to raise prices. And also a challenge from Jean-Jacques Rousseau (1762) on the basis that representative democracy could mean that electorates could vote for the better of two bad alternatives yet, in between elections, 'remain as unfree as before' (Rousseau 1762; Holland 2015). Which has current resonance in the sense that, despite misrepresentation by authors such as Popper (1949) and Talmon (1961), Rousseau was not writing for nation states, but for very small societies and in which his role was less a lawgiver (though he used the term) than that of a management consultant who would advise on how those seeking a new society could learn from experience of others and devise a Social Contract that could help them achieve a society which would fulfil their shared values.

The chapter illustrates widespread criticism of New Public Management (Denhardt and Denhardt 2000a, b, 2003, 2007; Pollitt and Sorin 2011; Osborne 2010; Osborne et al. 2012) and the case that what is needed to both understand and enhance National Health systems is a New Public Service paradigm. It also considers the actual and potential roles for hybrid managers in the sense of medical professionals who are called upon to manage units and services. It illustrates the difficulties that many such managers encounter in reconciling their professional values with the performance demands typical of New Public Management and, by contrast, the degree to which their roles a hybrid managers may be enhanced within a New Public Service paradigm.

Within such a conceptual framework, the chapter aims:

- to deepen analysis of governance relevant to the management of health services and to illustrate the arbitrary premises of claims made for 'good governance' by international institutions such as the World Bank and the OECD;
- to redress the presumption of New Public Management that health professionals are self-interested and cannot be trusted, which was a key feature of the introduction of New Public Management and performance surveillance in the UK;
- to outline how private sector management imported to the British National Health Service on the grounds of introducing greater economic efficiency has ranged from ineffective or counter-productive;

- to distinguish economic and social efficiency in health provision, where the latter means not only the wellbeing of patients but also of health professionals and where social efficiency may be vital for enabling sustained economic efficiency;
- to complement theories of institutional logics (e.g. Lok 2010), by distinguishing such logics from organisational and operational logics;
- to recognise the degree to which logics not only are explicit, as in management protocols and performance criteria for management of health services, but also implicitly normative and the degree to which their norms and values may conflict with those of health professionals;
- to admit the degree to which efficiency depends less on performance protocols than on the tacit knowledge of health professionals of what does or does not work well at operational levels;
- to address how the case for hybrid management in the sense of medical professionals as managers, at operational levels within complex organisations such as hospitals, needs to recognise that this may pose problems for them in terms of professional and managerial identity, yet also the degree to which this also may be resolved within a New Public Service rather than New Public Management paradigm;
- to restore the centrality of human and social values to analysis of public health systems.

2 Governance, Efficiencies and Management

Governance is more than government or administration. Efficiency is more than what works or does not work rather than what may work well. Both concern what is done, why, how, where, when, by whom and to whose advantage. Bevir et al. (2003) and Bevir (2012) has defined governance as all processes of governing, whether undertaken by a government, through laws, norms, power or language and whether formal or informal, which is wide ranging but less then definitive. According to McGahan (2014) it implies not only managerial control systems but also authority and leadership systems, as well as mandates for action, and also issues of transparency and accountability.

Yet governance—or misgovernance—may be less than transparent, or near to entirely repressed. While effective governance also may be rent by conflictual institutional logics. Such as, in public health services, conflicts between market-driven managerial concern to reduce costs and professional concern to ensure high quality clinical care (Boselie and Paauwe 2003; van den Broek et al. 2014). Besides which, as (Oliveira and Raposo 2016) have submitted, institutional logics in command-and-control leadership systems may be authoritarian but inefficient because inflexible, while mandates for action and mission statements may claim more transparency in terms of performance appraisal and cost effectiveness, but not fulfil them in practice, nor be concerned to learn up from lower operational levels rather than deign down and demand compliance.

Following Oliveira and Raposo (ibid) and Oliveira and Holland (2013), this text proposes that theories of governance may be aided by distinguishing organisational and operational logics from institutional logics and explicit from implicit logics. In line with Oliveira, Holland and Filipe (this volume) it submits that the implicit logic of New Public Management (NPM) is Weberian in terms of hierarchy, Fordist in assuming gains from economies of scale, and Foucauldian in terms of intrusive surveillance (Foucault 1977), with outcomes that negate the intentions of some of its initial advocates and alienate professionals in a manner breaching psychological contract. In allowing the degree to which the production logic of NPM may be limited (e.g. Osborne 2010; Osborne et al. 2012) it nonetheless recognises with Oliveira and Holland (ibid) that post Fordist lean management, on the model of the Toyota Production System may offer efficiency gains which also can gain employee consent.

2.1 Neglected Historical Perspective

One of the main claims for 'New Public Management' was that the public sector can and should learn from managerial techniques in the private sector (Ferlie 1996; Clarke and Newman 1997; Le Grand 1997a, b). Yet this neglects that public administration had been effective long before a modern private sector even emerged.

As Kickert has well put it:

> From a historical point of view, it does seem absurd that governments today are urged to adopt business-like management. Western public administration has a centuries' long tradition of running its business in quite an effective and efficient way, long before factories and industrial business were invented. …Napoleon was obsessed by the cost-efficiency of his administration and the Prussian bureaucracy was famous and feared for its forceful effectiveness' (Kickert 1997, p. 70).

Issues concerning good governance also have been mainstream in European political theory and politics for millennia. They were addressed by Aristotle in his *Politics,* who deployed the concept of *eudemonia*—or purposeful engagement in not only life and work but also in civic society (Robertson and Cooper 2010). They were of central concern for medieval theologians such as Aquinas. They were notably addressed by Hobbes, Locke and Rousseau in terms of Social Contract theory which was in vogue in both the 17th or 18th centuries. The reasons driving this were the decline of unquestioning acceptance of religion and of the 'divine right' of monarchy. The need was to find something that would justify so-called 'natural' rights.

Hobbes (1651) was influenced by the English civil war (1640–1658), at which time he was in exile as an adviser to the heir to the throne who thereafter would

regain it with the Restoration of the monarchy as Charles II. His social contract was that, in return for assuring peace, the sovereign would make all laws and enforce them. Locke (1690) based his social contract on property, and much influenced the American Constitution, though it is overlooked that his draft of a Constitution for Carolina he sought to justify the 'natural' right to ownership of slaves. Rousseau (1762) took a different approach, inveighing against inequality and the appropriation by some people—notably monarchs and aristocrats—of what should have been the natural rights of others (Rousseau 1757, 1762).

It is Rousseau rather than Hobbes or Locke who is most relevant in terms of in terms of the relation of theories of governance to management. He intended his social contract to be for very small societies, insisting in *Du Contrat Social* (1762) that the members of the society negotiating and then agreeing such a contract should know each other. This is a highly restrictive condition and impossible for even so small a state as Luxembourg, or Monaco. Neglecting it caused critics such as Popper (1949) and Talmon (1961) to claim that his idea of a '*volonté générale*' or 'general will' for a whole nation was totalitarian which it would have been had Rousseau been writing for a major nation state rather than for small societies and proved to be so when the Jacobins in the early years of the French Revolution co-opted him for France.

Rousseau was making the case that the formal right to vote did not enable effective democracy. In criticising the limited and unrepresentative electorate of England in his own time, he derided it as a system in which, once every several years, people could vote for the better of two bad alternatives yet in between elections remain as unfree as before (De Jouvenal 1947). This is why he argued the case for a Social Contract which every citizen would pre-agree clause by clause as embodying both a'*volonté générale*' and a'*volonté individuel*' (Rousseau 1762). The meaning of '*volonté*' in French also is not the stronger and overloaded term of 'will' into which it has been translated in English, with implications of force or constraint, but 'the ability to be able to determine certain outcomes for oneself' (Larousse). This means enablement or empowerment, which also is why Rousseau became the key ideologue of the French Revolution for those wanting to overthrow monarchy by divine right and enable 'citizen power' (Holland 2015)

Within Rousseau's Social Contract for a small society everyone has a mutual interest in observing an explicit rule or law because to do so was consenting to what one had agreed with others for oneself. His 'legislator' for a social contract was not a lawgiver, but an adviser to those wishing to agree such a contract, and who would have enough experience of different societies to be able to outline the implications of what they were considering, including whether or not this would engender inequalities which could threaten the integrity of the contract itself

Thus, like a change management consultant, Rousseau's legislator was an adviser, not a ruler, and when his job was done he would leave, subject only to recall if a problem emerged on which his further advice was sought (Holland 2015, 2016b). In effect, in terms of the parlance of Denhardt and Denhardt (2007, b) he 'served' rather than 'steered'. We submit that his principle still is relevant to whether a new organisational or operational design is conceived and made

top-down or suggested from base and middle up. What employees at lower level have proposed will be more acceptable to them in enabling change when it already carries their implicit or explicit consent (Oliveira and Raposo 2016).

Rousseau wanted his social contract be written, so that there could be a term of reference for those who later might come to challenge it. But he also recognised that the dialogue which could promote it would identify and surface what otherwise was tacit, explicitly using the word 'tacit' in relation to values and stressing dialogue as a means of surfacing what people knew they valued but had not thought through how they could achieve it (Rousseau 1762, Chap. VII). This was long before the more recent theory of surfacing tacit knowledge through discourse and its analysis on a grounded theory basis (Glaser and Strauss 1967; Charmaz 1990, 1994; Shah and Corley 2006; Oliveira et al. 2015) or the recognition of Pollitt and Sorin (2011), to which we return later, that academic studies of New Public Management, and the practice of NPM, may not capture the tacit knowledge, and values, that may be vital for good governance of health services.

3 'Good Governance' Models

The term '*good governance*' came into fashion from the 1980s with recommendations on how this should be achieved from leading international organisations such as the World Bank (1992), the United Nations (1995), the European Commission (2001), and the Organization for Economic Cooperation and Development (1995, 2003, 2009).

A common theme within their recommendations was the distinction, derived from Montesquieu (1748) of the separation of powers between a legislature, a government and a judiciary. Montesquieu's case was explicitly normative in his concern not only to describe systems of governance as they were, but as they should be. As also was the case with the recommendations on 'good governance' of the World Bank, the EU Commission and the OECD.

For example, the Public Management Committee of the OECD recommended more performance management, introducing more competition to the public sector, offering quality and choice to citizens and gaining more business orientated performance criteria (OECD 1995). Yet also was highly normative in the sense that it tended to assume that private sector organisations necessarily were more efficient than public institutions.

In the case of many developing countries emerging from the colonial era, there were grounds for making such a case as well as the degree to which governments and state institutions could be 'captured' by vested interests. Yet the underlying assumptions of the recommendations of the OECD, World Bank and the European Commission, in particular, also were deeply ideological, tending to reflect the claim of Friedman (1962, 1970, 1980) that the private sector always was more efficient than state or other public institutions. The OECD's claims in its *Government at Glance* (2009) were no more than that, rather than in depth analysis, with a failure

to do more than presume. There also was a failure to recognise that public institutions could function well and, compensate for major market failures. As in the case of the Roosevelt New Deal which not only recovered the US from The Depression but also restored the faith of Americans in democracy (Schlesinger 1957–1960, 1983).

Further, the recommendations of 'good governance' such as by the World Bank and the IMF had been compromised by the deflationary macroeconomic policies that they demanded of developing countries through 'structural adjustment' which proved a disaster for development in Sub-Saharan Africa and much of Latin America (Brandt & Manley 1985). While, rather than replicating the public investment based recovery of the Roosevelt New Deal, when faced by the financial crisis of 2007–2008, Eurozone governments invoked a Troika of the IMF, the European Central Bank and the Commission for which they had no legal basis in any Treaty to impose cuts in public expenditure which caused a beggar-my-neighbour deflation of demand and employment without precedent since the 1930s. Including the misplaced neoliberal presumption, derived from Milton Friedman, that such austerity would 'crowd in' private investment when in practice it was not enabling a recovery of private sector confidence and investment, but stalling it (Holland 2015). Causing even the IMF by 2016 to claim that neoliberalism had been 'oversold' (Ostry et al. 2016).

4 From Social Justice to 'New Public Management'

The case that a National Health Service would be not only socially just but also more efficient than private sector provision had been forcefully argued in the UK by Richard Titmuss (1970), who presciently made the case that private sector health provision in the US had been more than three times more costly in terms of administration than that of the National Health Service introduced in 1948 by the postwar Labour government. Titmuss illustrated his case on the grounds that private sector provision in the US not only was socially exclusive in that half of the population could not afford it, but that voluntary contribution of blood was more efficient than paying for it. Not least since those who needed to be paid for it would be among the less privileged in society, and more prone to disease. Also, that administrative checking whether a prospective patient had private health care provision, and precisely what this might or might not cover, not only added to administrative costs but also meant that someone in an emergency might not be admitted for treatment until this—taking hours—had been assessed and then still not gain it since not being covered by a private health scheme.

Despite the force of this case, the premise for New Public Management, pioneered in the UK, was that governance of the public sector can gain from market or 'quasi-market' principles. This was not initially explicit. Neither the incoming Thatcher government in 1979 nor the Blair governments from 1997 advertised that they would privatise the National Health Service. Yet the case for introducing such

market or 'quasi market' principles into the NHS was claimed by a British academic, Julian Le Grand, who became influential as an adviser to Tony Blair in the British Cabinet Office from 1997. In an introduction a re-issue of Titmuss' classic work in 1997 (Le Grand 1997a) chose to volunteer that the Thatcher government: 'took to heart David Hume's dictum that social and economic organisations ought to be organised on the assumption that everyone who worked within them was a 'knave: that is, out to pursue their own self-interest above all else' (Le Grand 1997a, p. 337).

Le Grand then claimed to support this in a paper on 'Knights, knaves or pawns: human behaviour and social policy', which was published the same year in *The Journal of Social Policy* (Le Grand 1997b), asking: 'Wasn't the reality of the old welfare state one of professionals and other workers more concerned with their own needs than those of their clients? And, if so, isn't a quasi-market a good way to channel that self-interest and make it work towards the public good?' (Le Grand 1997b, p. 338).

But Le Grand thereby displaced Hume's warnings that what we 'deem to be realities' is influenced by our personal and professional dispositions. For what he referred to in claiming Hume in support of his own view was not Hume's main writings on human understanding (Hume 1739, 1740) or on morals (Hume 1751), but an essay on the British parliament of his time (Hume 1753) in which he denounced an unrepresentative democracy governed in their own interests by 'knights of the shires'. These could well be deemed knaves on a range of grounds including being elected in rotten boroughs with next to no constituents, restricting the vote to some two per cent of the male population, opposing any electoral reform, and acting exclusively in their self-interest as landowners by maintaining the Corn Laws against whose protection Ricardo (1817) in the early 19th century was to inveigh.

Yet Le Grand also displaced that while Hume in the second paragraph of the first page of his essay remarked that: 'It is, therefore, a just *political* maxim, *that every man must be supposed a knave'* he then immediately followed this by observing: 'Though at the same time, it appears somewhat strange, that a maxim should be true in *politics*, which is false in *fact'* (Hume, ibid, his emphases).

This also is more than a footnote in intellectual history and a challenge to intellectual integrity. On this false premise, traducing Hume, Le Grand centrally influenced introducing 'quasi-markets' into the British NHS. These not only alienated health professionals at all levels from consultants to nurses to ancillary staff and in 2015 led to the first strike in the English National Health Service, supported by 97 % of doctors (Holden 2016). The concern to monitor them by new levels of supervisory management nearly trebled administrative costs as a share of total costs from under 5 % to over 14 % (Pollock 2004; Oliveira and Holland 2007a, 2013; Leys and Player 2011) which had been warned by Titmuss could be the case and by any test of 'functioning' (e.g. Sen 2009), proved not only demotivating for health staff, but entirely dysfunctional in terms of economic value.

4.1 Explicit and Implicit Logics

None of the above is to suggest that governance is simple or straightforward. Not least, it may be rent by conflictual institutional logics (Lok 2010). Such as, in public health services, conflicts between market-driven managerial concern to reduce costs and professional concern to ensure high quality clinical care (Boselie and Paauwe 2003; van den Broek et al. 2014). Besides which institutional logics in command-and-control leadership systems tend not be concerned to learn up from lower operational levels rather than deign down and demand compliance.

With reason, therefore, Pache and Santos (2010a, b), Greenwood et al. (2011), and Lounsbury and Crumley (2007) have advocated that more research should be addressed into how people and organisations respond to multiple institutional logics. Thus Anthony et al. (2014) have found that while health care in the United States is institutionally regulated, compliance with regulations is variable. For example, compliance with rules for electronic data processing in the 1996 Health Insurance Portability and Accountability Act took longer than expected and was highly uneven across US hospitals.

Roberts (2010) has characterised many NPM reforms as exhibiting 'the logic of discipline', derived from two arbitrary presumptions. (1) That democratic politics tends to produce short-sighted, unstable and self-interested policies, which was contradicted in the case of the introduction of a National Health Service in Britain by the Labour government in 1948 in the sense that no Conservative government thereafter, including that of Margaret Thatcher, dared to openly advocate its dissolution. (2) The presumption that if certain activities or institutions are removed from everyday politics, politicians cannot interfere with them and that more stable and far sighted policies will be possible. Whereas, in practice, governments such as those in the UK, and in England after devolution of health services, constantly introduced 'change-on-change' in different versions of NPM which led a committee of the House of Commons to denounce 'boom and bust' health policies in which managers of hospitals and health authorities hardly had time to see if they could fulfil the last demand deigned from on high by government before they were demanded to fulfil another (Carvel 2007).

Ferlie and Geraghty (2005) have drawn a distinction between 'hard' and 'soft' versions of NPM. The hard version emphasized control through measurement, rewards and punishment, while the soft prioritized customer-orientation and quality, although nevertheless incorporating a shift of control away from service professionals and towards managers. As Pollitt and Sorin (2011) have observed this mapped closely with low trust/high trust tensions.

Roberts (2010) also has submitted that, in many cases, de-politicisation turned out to be anything but politically neutral, and that organisational autonomy proved elusive. As well as that NPM when applied in hospitals has not necessarily delivered more efficiency but often less (Pollitt and Bouckaert 2011). Which also has been corroborated by others. As in the already indicated case that the introduction of new line managers in the British NHS—and in the English NHS after

devolution of health management to Scotland and Wales by the Blair governments —near tripled administrative costs as a share of total costs from less than 5 % to as much as 14 % (Pollock 2004; Oliveira and Holland 2007a; Leys and Player 2011).

4.2 Lean and Social Rather Than Technical—and Green

Osborne et al. (2012) have criticised New Public Management (NPM) as 'not fit for purpose' and done so mainly on economic grounds that its implicit rationale is a production paradigm derived from manufacturing, whereas services in general and public services differ from this. Such as that the sequence of manufacturing ends with a product, whereas services are ongoing and relational.

While recognising the force of this case and the advocacy of Osborne et al. for an alternative New Public Service (NPS) paradigm for hospital management, Oliveira, Holland and Filipe (this volume) have submitted that the distinction between manufacturing and services can be overdrawn and done so on the basis that the Toyota Production System (TPS) has involved relational coordination both within Toyota, as has been recommended by Gittell (2003, 2011a, b, c) and also ongoing relationships after the delivery of a vehicles with both buyers and suppliers. This is consistent with an increased interest in the TPS as an example of lean production which is relevant to gaining greater efficiency in hospital management and the delivery of health services (e.g. Teich and Faddoul 2013)

Lean in this sense is in terms of cutting waste in time, materials and flow of goods and services—Japanese *muda* (Colenso 2000)—and enabling an enhanced patient focused service by combining *kaizen* or continuous improvement with reduction of stocks and overheads through *kanban* delivery of components on a just-in-time rather than just-in-case basis.

Yet, as submitted by Oliveira, Holland and Filipe in their contribution to this volume, going lean is not only a management technique and, if assumed to be such, is likely to fail. On which they with reason cite Kaplinsky and Posthuma (1994) to the effect that the key to lean:

> lies in the social rather than the technical domain, for the essential principles of these Japanese techniques—their *technics*—are easily comprehended and not technologically complex. But their successful adoption overturns many of the social relations of domination which were so important in the evolution of Taylorist forms of production management and control (Kaplinsky and Posthuma, ibid, p. 285).

Moreover lean also may be based on green values, and gain from them. Thus Pampanelli et al. (2013), in a 'Lean and Green' model, have claimed that operating lean on a devolved cell or group basis, rather than simply demanding cuts on a command-and- control basis, can reduce total costs of mass and energy by between 5 and 10 %. Bergmiller and McCright (2009), after examining several lean companies, found that green firms including what they define as Green Operation Systems at group levels achieved better lean results than those that did not.

Bortolini et al. (2016) have found increasing concern with green supply chains such as to minimise landfilled waste, drain wastewater can avoid pollutant emissions and that lean cost reduction in such contexts can be reinforced by green principles. They recommend the application of such principles to the whole value chain including both production and distribution networks.

4.3 *'New Public Services'—and the Recovery of Social Values*

For organisations whose management is concerned with climate change going for green therefore may be both economic and also social value driven. More central concern with human and social values also has been advocated by Janet and Robert Denhardt (2007) in their *The New Public Service: Serving, Not Steering* in which they have sought to redress several of the shortcomings of NPM by stressing the degree to which there should be a recovery of the right to high quality public services as an extension of citizenship and what they conceptualise as 'organizational humanism'. As they put it, such a New Public Service approach:

> …seeks to pose and inform a number of central normative questions about the field. How can we define the essential character of what we do in the public service? What is the motivating force that propels our actions? What gives us strength and capacity when the trials and turmoil of our work get us down? How can we keep going even as we face problems that are complex and intractable with extremely limited resources and a public that often resents and criticizes what we do?…. What really matters is not how efficiently we have done our jobs, but how we have contributed to a better life for all.' (Denhardt and Denhardt, ibid, pp. 3–4).

What is striking about the claims of Denhardt and Denhardt (ibid) is the degree to which, without cross reference, they are recovering the aspirations of Rousseau (1762) both to enhance citizenship rights and to overcome alienation at work and in life. As well as the claims of Durkheim (1957) for professional ethics and civic morals. We also share the centrality that they give to human and social values rather than market values which two of us also have stressed in a joint paper (Oliveira and Holland 2012) and represent in Fig. 1. For values are not only economic. People value what they have gained from personal and social relationships in the past, and may anticipate it in future with greater or lesser justification. They also can explicitly exchange or implicitly transfer values to others such as children. Market values sanction inequality, and tend to promote it. Human value relates centrally to issues of equity and of procedural and distributive justice, as in the manner stressed by Sen (2009).

Market values are explicit and readily identified, such as in costs and prices, whereas human and social values are mainly implicit, such as valuing a public health service either as a patient or a health professional yet not recognising and affirming the degree to which we do so until it is challenged by efforts to privatise it. Which parallels the claim of Denise Rousseau (Rousseau 1995, 1998) that what is assumed to be a psychological contract is only assumed until it proves to be

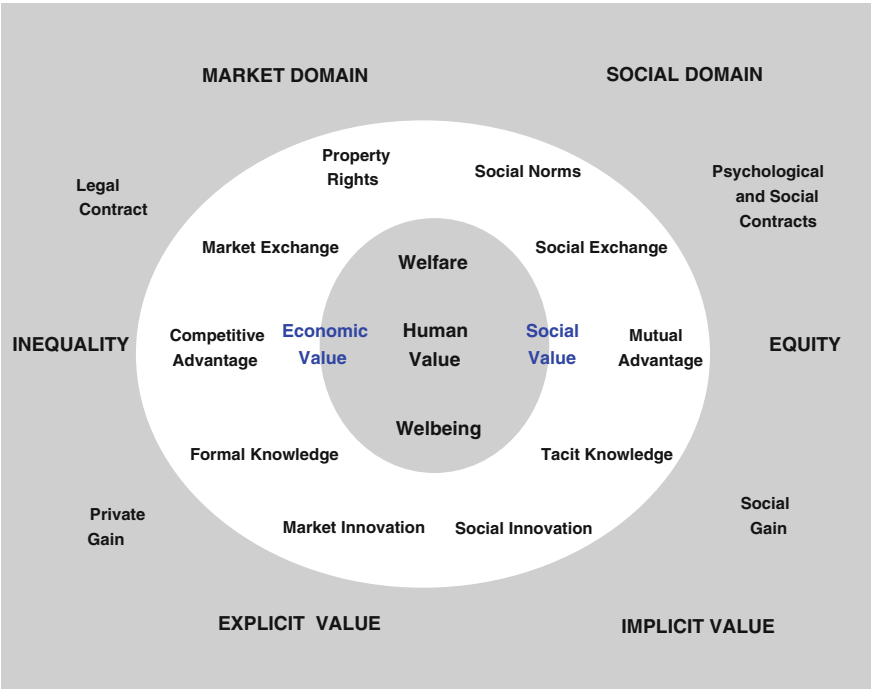

Fig. 1 On the centrality of human value. *Source* Oliveira and Holland (2012)

breached. Or that a public health service implicitly assumes a social contract between a government and citizens even if many to most people do not consciously conceptualise it as such (Oliveira and Holland 2007a, b, 2012).

Thus, in terms of Fig. 1, market exchange can enhance welfare but also may minimise it if, in labour markets, income is at subsistence levels which is why, in his *Wealth of Nations* (1762), though displaced by neoliberal theorists, Adam Smith advocated the legalisation of trades unions. Property rights may reinforce or contradict social rights depending on context and the private or social basis of ownership of property and how it is managed. Shared social values enable functional societies in the sense of Smith (1759) and may enhance capabilities (Sen 2009), whereas lack of them may prove dysfunctional.

Competitive advantage may be reinforced by mutual advantage, such as the right to work–life balance, skills enhancement or profit sharing (Oliveira and Holland 2007a, b). Market innovation may be highly valuable, or destroy value, both in the sense of Schumpeter's (1911, 1949) 'creative destruction' and when 'creative financial engineering' such as speculation in subprime and other derivatives does so. Social value includes social externalities such as mutual gain from a safe, clean and green environment. Social innovation also has transformed societies in the case

of welfare states since the introduction of state pensions and public education and health services.

5 Levels, Logics and Hybrid Management

We suggest that the above concerns not only issues of governance of public institutions such as a health service, and who may be able to achieve both lean and green governance, but who is best able to manage it. This relates to how the models of health and hospital organisation can achieve both economic and social efficiency in serving both the public well and enhancing Robertson and Cooper's (2010) eudemonic self-fulfilment for health professionals. It concerns not only who should manage whom, on what basis, but how and at what levels. The previous analysis of NPM in the UK and English NHS (Pollock 2004; Oliveira and Holland 2007a, b, c; Leys and Player 2011) has shown that introducing new layers of supervisory management on a command-and-control basis has increased rather than reduced costs and alienated health professionals. In principle this suggests that, within institutional constraints, including budget constraints, there should be relative autonomy for doctors-as-managers at both organisational and operational levels to manage clinical services in a context of lean management and economies of scope, continuous improvement and innovative work methods. In which case they would be hybrid managers.

5.1 Positive and Negative Hybridity

A mainstream dictionary definition of a hybrid is of a plant or animal that has been produced from two different types. But which does not necessarily imply replicability. The hybrid of a male horse and a female donkey is a mule or "jack" (hence the word "jackass") while mules themselves cannot reproduce.

In terms of organisation theory a hybrid manager, drawing on one discipline in which he has been trained, may be highly innovative and productive in another. Such as Alfred Sloan, an accountant, who took over General Motors after it had been bought by Will Durant but who did not know how to manage it, whereas Sloan introduced the multi-divisional organisational model that became paradigmatic in the high period of Fordism, and was reproduced by near to all other organisations in production, services and finance for half a century or more until challenged by the operational logic of economies of scope rather than scale in the Toyota Production System.

Effective management therefore may not need initial specialisation. Sloan knew nothing about how to build a car rather than assuming that there should be standardised performance criteria for the various divisions of General Motors—Buick. Dodge, Oldsmobile Chevrolet etc. Ford had no management training nor even

training as an engineer when he evolved the continuous assembly line combined with Taylorist division of labour that at one point meant that he was producing nearly half the vehicles in the world (Womack et al. 1990).

5.2 Explicit and Implicit Logics

Moreover, logics are not only explicit in the sense in which we may have been taught algebra when at school, or in the sense of the architects of New Public Management who may assume so in recommending explicit criteria for performance as if these are self-evident and therefore should not be open to question.

As illustrated by Bourdieu's (1977, 1984, 1990, 2004) in his concept of *habitus,* concerning the world in which we are born, bred and have our being. These imply different explicit or implicit logics, including:

- a *voluntaristic* logic by which we tend to 'know what we want' and may be driven by it, as in either actively seeking to justify or realise something, such as a public health service;
- a *practical* logic which entails neither a theoretical knowledge of norms and formal rules nor a conscious elaboration of strategies but is implicit in we do and expect;
- a *normative* logic including values of which in the main we are less than conscious unless they are challenged, as they have been for health professionals with the demand that they obey performance criteria which in terms of the *practical* logic that they have derived from their experience make little to no sense in adding to their effectiveness, and may inhibit it by needing to spend time on reporting on them, at length, which they otherwise could be devoting to patient care.

Bourdieu enhanced his concept of voluntaristic logics in terms of *roles.* He distinguished between paradigmatic or 'dispositional' roles, and those that are inter-active or 'situational'. Notably, paradigmatic roles tend to be deeply embedded in institutions and assumed, whereas situational roles are explicit and concern social action and interaction. He also distinguished between the grammar of language as paradigmatic and speech as situational, writing in his *Logic of Practice*, (Bourdieu 1990) of *habitus* that it:

> ensures the active presence of past experiences… in the form of schemes of perception, thought and action' and that these influence our perception of what is correct or incorrect more constantly and more reliably than all formal rules and explicit norms' (Bourdieu 1990, p. 54).

5.3 Bourdieu, Conflicting Logics and Outcomes

An example of conflicting voluntaristic, practical and normative logics in the sense of Bourdieu was evident following the NPM reforms in the UK and then England. In terms of hybrid management private sector executives were bringing their commercial experience to bear on what they assumed was relevant in terms of practical and normative logic to the public sector in the delivery of health services.

Yet such hybridity proved dysfunctional, not only in terms of the negative economic and social outcomes identified by Pollock (2004), Oliveira and Holland (2007a, b, c) and Leys and Player (2011) but also in alienating health professionals for whom, drawing on both their own values, dispositions and beliefs, but also their tacit knowledge of what worked or did not work in practice, strenuously resisted being told how to perform by line managers who had no experience of a public health service other than as a patient, or even none at all if the private health insurance which had been part of their contract as an executive in the private sector meant all that they recently had experienced in terms of health care had been in the private sector.

5.4 Hybridity, Complexity and Identities

Joffe and MacKenzie Davey (2012) have recognised that hybrid management at intermediate levels within complex organisations such a hospitals poses ambiguities for health professionals in terms of a challenge to their professional identities. While some chief executives of hospitals, or of a health service may be doctors, a hybrid manager in health services typically means a doctor—and less typically a senior nurse, who—willingly or otherwise—assumes a managerial role at *operational* levels.

But doctors may not welcome being managers even at the operational levels of services or units within a hospital, rather than find the role 'thrust upon them'. And accepting for multiple reasons, including awareness that a medical professional should do the job if it is not to be usurped by a manager with no medical experience. Not least because there is extensive evidence that for doctors assuming a managerial role may well give rise to identity and role conflicts.

According to Joffe and MacKenzie-Davey (ibid) the evidence suggests that professional identity remains a strong driver for those professionals who take on hybrid roles. This has been shown to be the case with nurses (Bolton 2004); lawyers (Wallace 1995); newspaper journalists (Russo 1998); social workers (Connolly and Jones 2003) and police officers (Butterfield et al. 2005).

Hoff (1999, p. 55) also points paradoxes of which doctors as managers may be well aware, and that 'by gaining credibility as managers physician executives may ultimately lose the credibility as physicians that is the other half of their uniqueness claim'. Inversely, in the UK case, and more recently in the NHS in England,

medical directors' may enhance their reputation with other health professionals in the sense that they usually are the only clinician on the board of a Health Trust Board, and thereby can be 'voice' (Hirschman 1970) for such professionals.

Bruce and Hill (1994) found that for medical directors maintaining clinical credibility as a consultant—which in British medical terms means a senior doctor, rather than an outside adviser—was more important than achieving success as a manager. Some commentators such as Scorgie (1994) have proposed that medical directors should be selected and appointed by an electoral constituency of consultants to avoid being seen as a management—or government—appointment, which is consistent with Denhardt and Denhardt's case for introducing internal democracy within a New Public Service paradigm. Hoff's (1999) research reflected that those who were seen to be co-opted by the organisation had less credibility than those who became managers through their exceptional clinical record. From an operational perspective, medical managers are in the advantageous position of bringing an understanding and knowledge of clinical processes to judgements concerning resource use, which non-medical managers cannot (LeTourneau and Curry 1997; Montgomery 2001; Hoff 1999).

Huxham and Bothams have claimed that medical directors have the potential 'for making a powerful contribution to the strategic thrust of the organization' (Huxham and Bothams 1995, p. 27). Yet we suggest that this is open to question in the sense that the 'strategic thrust of the organization' in the case of a hospital subject to NPM reforms may be entirely beyond the control of anyone in a hospital, including not only clinical managers and doctors as managers of services and units, but even its CEO. For, as we develop elsewhere and articulate also below, organisational strategy is subject to the institutional logic of change management as demanded by governments which can constrain even senior managers within hospitals and limits also operational autonomy.

In parallel, but also by contrast, Eeckloo et al. (2007a, b, c) define hospital governance as a complex combination of different equilibria which determine decision-making. But the concept of equilibrium arguably is misplaced in the sense that even those who introduced it in economics, such as Walras, admitted that he had not managed to do more than give a static picture of what might be a balance between competing interests and forces at one time, rather than give a conceptual framework that might capture disequilibrium and asymmetric outcomes over time (Holland 2016c).

5.5 *Hybrid Reorganisation of Hospital Services in France*

Burellier (2008) in a study of reforms of hospital organisation and management in France also has found changed roles for hybrid management more in line with Mørk et al. (2012) on boundary spanning if, unlike Mørk, or Gittell (2003, 2011a, b, c) on relational coordination, on an inter-organisational rather than

intra-organisational basis which also has been stressed as important by (Osborne et al. 2012) in developing the concept of New Public Services.

In 2003, the French government launched the 'Hospital 2007' plan, a reform aiming, among other things, at remodeling public hospitals, by making them change from traditional department based organisations to 'pôles of activity', where pôle in French means both a centre and also a synergic point of attraction. This new hospital model generated the need to create new roles in the system which Burellier deemed hybrid because they associate professional activities—the practice of medicine—and management activities—with human resource management, team organisation, and financial management.

Initially, as in the findings of Joffe and MacKenzie-Davey (2012), this posed problems of identity for health professionals who often found themselves 'stuck' rather than be able to achieve Mørk et al.'s boundary spanning between clinical concerns, administrative imperatives to reduce costs and the government's assumption that 'health pôles' would create innovative synergies.

6 Asking the Wrong Questions

Pollitt and Sorin (2011) cite Hood (2011) as one of the scholars who originally 'discovered' and defined NPM, as observing 'how little we seem to know after decades of research about whether and how far NPM 'worked' in what is commonly said to have been its main original concern, namely to cut costs and improve efficiency (Hood 2011, p. 738; Pollitt and Sorin 2011, p. 52). In commenting on this, and with perhaps undue modesty, they observed that: 'Broadly speaking, there are two obvious possibilities. First, perhaps there are general rules which adequately summarize the impact of NPM reforms, but we have not found them. Alternatively, second, there may be no such general rules, in which case we may have been asking the wrong kind of question' (Pollitt and Sorin, (ibid, p. 53)

For example, in summarising their findings from a meta-analysis of 520 relevant studies, Pollitt and Sorin (ibid) then observe that there remains at least one puzzling question. Why such a huge amount of reform—organizational change and upheaval in almost every European state—has taken place if the evidence for its positive effects on citizens is so slender? In response they suggeste the following.

1. NPM has been primarily an issue of faith rather than demonstrated results. Politicians and senior civil servants have somehow been 'sold' a set of ideas and principles which are actually by no means as widely efficacious as their proponents have claimed.
2. NPM has been adopted primarily for its symbolic properties. It symbolised modernization and a more customer-oriented stance by the public authorities and also a populist, anti-bureaucratic stance.
3. NPM has been a somewhat self-interested and even, on occasions, cynical exercise by politicians and senior civil servants. Faced with high pressures to

restrain ever-rising public expenditure, governments have launched schemes to cut back the public sector but, knowing these are unlikely to be popular, they have cloaked them in programmes of reform that promise'more with less'. Thus the main aim has actually been economy and/or increased control by the top over operating agencies, not improved customer service.

4. NPM has been pressed onto some countries by other countries or institutions—particularly by the original, core NPM enthusiasts, namely Australia, New Zealand, the UK, the USA and international organizations, especially the OECD and the World (Pollitt and Sorin, pp. 56–57).

Pollitt and Sorin (2011) also have observed that:

> Another possibility is that useful knowledge exists, but that it is hard—or even impossible—to put into a codified, explicit, 'scientific' form. It may be a form of 'craft' or tacit knowledge, which experienced practitioners have developed but which depends on un- or seldom-articulated understandings of the nuances of particular situations and formations of reform actors… If, however, this is the case then, ipso facto, we are not going to find the general rules by searching academic and official literature. One would have to adopt quite different research strategies, for example by using prolonged participant observation of experienced public managers at work' (Pollitt and Sorin 2011, p. 54).

6.1 Values, Beliefs and Tacit Knowledge

Tacit knowledge has been widely recognised since Polanyi (1968), a chemist and physicist who held a combined chair in these at Manchester after WW2, who claimed that tacit knowledge, and intuition, were more important for these alleged 'hard' sciences than inference, in that what we assume to be 'facts', depend on how we are disposed to assume them. It also has been recognised by others such as Glaser and Strauss (1967), Glaser (1978), Nonaka (1994a, b), Nonaka and Takeuchi (1995), Ichijo and Nonaka (2007), Oliveira et al. (2015) that tacit knowledge can be identified by discourse and discourse analysis. Which, as already indicated, was the approach that Rousseau (1762) had adopted in terms of discourse revealing what people in a small society might want, on the basis of shared values, from a Social Contract.

6.2 Tacit Knowledge, Latent Abilities and Hybrid Skills

But one of the limits of a concept of economic efficiency in health reforms based on fulfilling performance criteria deigned down from on high is that their logic is constrained by being only explicit and concern with ability to perform them. Whereas the skill needed to perform well, either in clinical terms of management, cannot readily be assessed by such criteria. Nor can they capture that effective

performance depends also on the values, belief and personality of health professionals, including purposeful engagement in health as a public service rather than an extension of market values into a social domain.

Similarly, knowledge also is vital for publications, including both research data and knowing how to write a paper that has a chance of being accepted by a refereed journal. But does not of itself mean that its author or authors may be skilled practitioners. In clinical care the number of consultations may be at the expense of their quality, as for general practitioners in the English NHS, where performance criteria in terms of government demands for greater patient throughput on an implicitly Fordist presumption led to general practices deciding that the average time spent with a patient should not be more than 7 min (Oliveira and Holland 2007a).

While, for transformational leadership, innovation needs to be not only in encouraging new medical techniques, or products, but in new methods of work organisation. Such as was the case in the transformational lean management reforms at Karolinska (Oliveira, Holland and Filipe, this volume), and where the outcome of more relational coordination through Patient Path Planning was an entire day each week which doctors could allocate for research. Which was not only scheduling of time. But meant that there was more likelihood that doctors concerned with research would be able to consent to and make provision to be available for it.

We illustrate the challenge for hybrid management of multidimensional changes in both the internal and external environment for health services and hospital organisation in Fig. 2. Their internal organisational and operational aims certainly include motivation of those for whom they are responsible and, to varying degrees, relational coordination across clinical specialisations, whether or not they are aware of relational coordination as a management concept. The external constraints tending to compromise or confound this include a still dominant neoliberal ideology, NPM performance criteria, austerity and the degree to which, willingly or

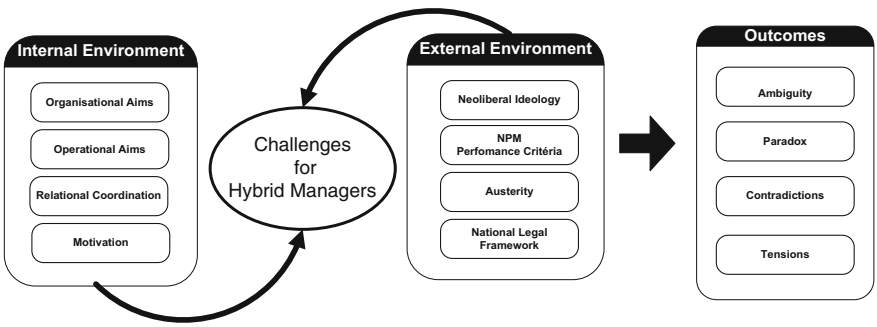

Fig. 2 Challenges for hybrid management in an NPM environment

reluctantly, a government may have embodies demands for these in national legislation.

The outcomes are not necessarily the enhanced economic efficiency to which New Public Management claimed to offer rather than ambiguity, paradox, contradictions—such as new layers of supervisory management increasing administrative costs in the case of the UK NHS—and tensions, including burnout rather than work-life balance.

Figure 3 suggests a framework in which hybrid management could resolve some of these contradictions with positive sum alternatives. Thus while institutional logics in the sense of government pressures to reduce costs and enhance efficiency may prove counter-productive for hospital governance in cases where demands for compliance within a Fordist-Weberian hierarchy may compromise the quality of service, both hospital administrators and health professionals—as managers—may be able de facto to achieve relative autonomy at operational levels which should also be recognised as needed by governments in terms of an organisational and operational logic.

Doctors as managers also are better placed to reconcile the needs of clinical practices with wider managerial aspirations for reducing costs. As was put to us by the medical director of a cardiac unit who, when posed with the 15 % reduction of costs in the case of Karolinska lean management, responded that he independently could achieve such a 15 % reduction of costs if he could retain control of purchasing rather than this being imposed on him from above. Since much of this in terms of equipment and drugs was simply recycling at higher cost by medical and pharmaceutical companies of which non-medical managers either were unaware, or were complacently compliant (Oliveira and Holland 2007a, b, c).

Figure 4 seeks to clarify our distinction between institutional, organisational and operational logics and relate this also to the concept of social efficiency within what is emerging as a New Public Service rather than New Public Management paradigm, and where this would be centrally concerned with social values rather than

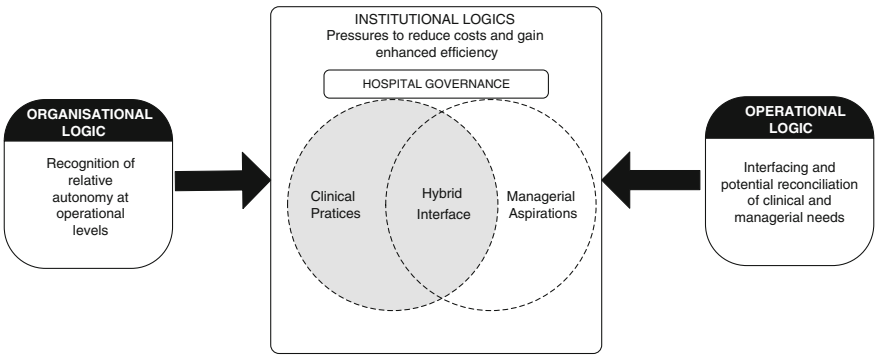

Fig. 3 Hybrid reconciliation of institutional, organisational and operational logics

only economic performance. Without compromising rather than potentially enhancing the latter. This would recognise levels not only in the sense that of institutional logic, at a national level, and organisational and operational logics, but also that international institutions should be more concerned with economic and social cohesion, as suggested by Pollitt and Sorin, and as also advoctaed by one of us in recommendations on cohesion in 1993 to Jacques Delors (Holland 1993), in whose foreword Delors both recognised the case for flexible production on a post Fordist model rather than flexible labour markets, and the concept of social efficiency as central to achieving economic and social cohesion which was one of the main commitments of the first revsiion of the Rome Treaty in the Single European Act of 1986.

Such a rationale, for the provision of public health services in terms of both economic and social cohesion, also should recognise that health services, like education, are mainly local rather than global in the sense that local education, or hospitals may attract global clients yet, unlike manufactures, cannot be relocated to the other side of the world (Holland 2015). With implications for both social and psychological contract in the sense that recognising this means that health professionals need not be tyrannised into accepting that they need to reduce costs to be competitive with hospitals elsewhere in the global economy, rather than both accept and contribute to the case that economic efficiency also is vital for social efficiency, such as in reducing waiting time and waiting lists for patients, as in the Karolinska model (Oliveira, Holland and Filipe, this volume).

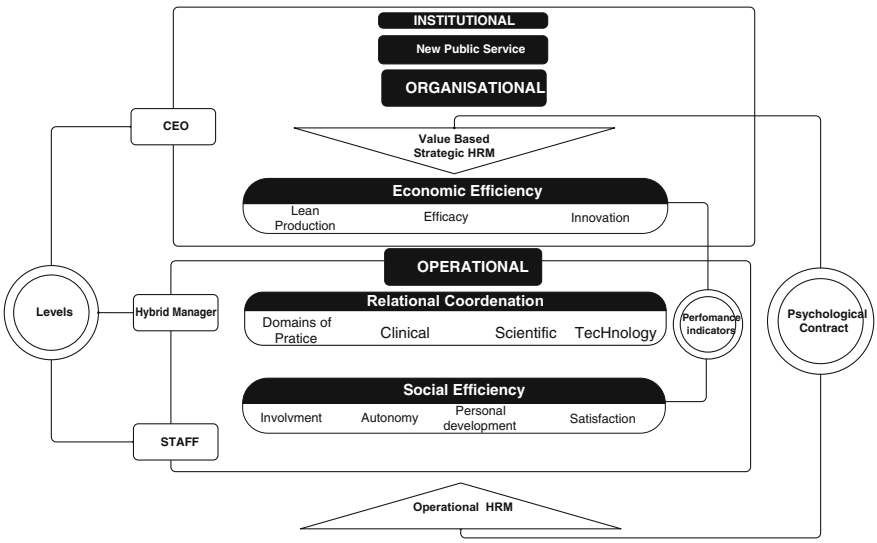

Fig. 4 A 'new public service' context for hybrid management

7 Social, Economic and Political Implications

What we wish to highlight in relation to the foregoing, in line with Denhardt and Denhardt (2007, b) and Pollitt and Sorin (2011), is the degree to which the social values that inspired the introduction of national health services have been displaced by a presumption that markets are more efficient than governments which has been comprehensively discredited in economic terms by the financial crisis of 2008, and in social terms by policies of structural reforms which have accompanied the introduction of New Public Management (Oliveira and Holland 2016).

Thus words 'structural' and 'reform' project a progressive image. They suggest that outdated structures and institutions are going to be reformed, which could imply progress. Yet they were regressive in the policies of the IMF and the World Bank during the high period of deflationary 'structural adjustment' in the 1980s which devastated Sub-Saharan Africa. Such reforms through 'market shock' in Chile not only collapsed internal demand and accelerated hyper-inflation after the overthrow of Allende but imposed a dictatorship in the only country in Latin America that hitherto had an uninterrupted record of democracy since its independence. The same alleged 'reforms' also collapsed the economies in the former Soviet Republics after the 'Fall of the Wall' (Holland 2015). As also in being demanded in Greece after the election of the Syriza government in 2015, where they have collapsed its GDP by more than by nearly two fifths (Holland 2016a, b, c).

These are examples of what the IMF paper by Ostry, Loungani and Furceri in 2016 has admitted in that neoliberlaism is not working. While also, unlike the Economy and Finance Directorate General of the European Commission, which has continued to demand'structural reforms', its Research Directorate, which supported the research by Pollitt and others, and its Employment and Social Affairs Directorate General, have been concerned to realise the commitment of Article 3 of the Treaties on the Functioning of the European Union to 'sustainable development, balanced growth and aiming at full employment'.

Pollitt and others within the (2012) project *Coordinating for Cohesion in the Public Sector of the Future* were remitted to consider the implications of New Public Management for economic and social cohesion, and did so. Denhardt and Denhardt rightly have claimed that the market bias of New Public Management needs to be countervailed by social values and social rights, which we have suggested can gain from an analytic framework which draws on the previously cited literature on tacit knowledge, yet also can delve deeper in terms of the Enlightenment distinction in Rousseau, Hume and Adam Smith, and more recently from (Sen 2009), between human and social values from market values.

Beyond which, if rare as a recommendation from a research paper, there may be synergies not only in analysis but also action. For example, Pollitt and Sorin (2011) have assessed more than 500 research papers on the scope and limts of NPM. Some 130 economists in the *Euromemorandum* Group (Euro-Memo Group 2016) for several years have been contesting the deflationary and deregulatory bias of the

Troika, while this, as indicated above, also now is being questioned bv the IMF. There is a case here for synergies. In relation also to the proposals for European recovery which one of us, with Yanis Varoufakis, has made and which now could inform the DiEM 2015 initiative for a democratic Europe (Varoufakis and Holland 2012; Holland 2016a, b, c).

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Educational Impact on Attitudinal Responses of Employees: Banking Industry Perspective

Anshuman Bhattacharya and Nilanjan Ray

Abstract Employer organizations are always concerned for getting maximum output from their employees. They provide a host of stimuli to their staff so that they fetch sound returns, but the give and take relationship is mediated by many factors. One of those is educational background of employees. Present study is an attempt of understanding the factor with reference to a nationalised bank. Employees were segregated in three groups (tenure, stream and highest degree earned) and their responses to organizational stimuli were measured through well-established scales. Analysis of variance was applied after descriptive analysis of data in order to find out significance of difference in responses. Results of the study indicate significant variance in responses amongst the groups. The study concludes that organizational stimuli should also be designed and manipulated according to the educational background of staff members.

1 Introduction

It is commonly conceded in any modern society that education is the value to wealth, position, and accumulation of work and superior goods (Beaton 1975). Education not only confers knowledge about the world but also transforms individual's value and preferences; and social position in the form of material and psychic rewards (Pallas 2000); the transformation of individual values and expectations, when matched (or mismatched) with their actual working conditions. Locke (1976), however, argues that deviation of fulfilment of expectations in the direction

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of values increases satisfaction. But education increases the expectations from one's job, consequently negatively affect job satisfaction.

There are three theories on the process how education shapes the individual lives. Though it is difficult to determine in practice which particular process is operating, these theories enhance our understanding of potential mechanisms through which the lives of individuals at different levels of education can differ.

1.1 Socialization Theories

The most popular model claims that education fosters cognitive development, instils knowledge and skills, and influences the attitudes, values, and other performances of individuals. Schooling teaches infants general and communication skills, reading and writing skills; it also fosters analytic skills of comparison, classification, and synthesizing in order to promote higher level of thinking and problem solving. Education also shapes the standards by which individuals evaluate themselves, their situations, and the social world around them and influences a range of attitudes. This is why this group of theories is also termed as socialization theories (Knox et al. 1993; Meyer 1977; Pallas 2000).

Education influences the importance of social–psychological outcomes for an individual specifically the importance of intrinsic, extrinsic and social rewards of working. The importance attached to autonomy, and social relationships are connected to occupational choice (Mortimer 1996) and attainment of work rewards (Johnson 2001) because, work values foster pursuit and attainment of rewards. Eventually, the attainment of rewards results in job satisfaction (Kalleberg 1977) and individual well-being. Education also influences work related values as it confer status and entitle young people to advantaged positions in society. Educational institutions give students new social identities to go along with their social positions (Knox et al. 1993).

1.2 Allocation Theories

These theories of education claim that education is a mechanism that directs young people into different social positions in society. As the title suggest, education confers status, provides credentials, enables access to more-fulfilling and better paying jobs, larger and stronger social networks and greater social and political influence (Knox et al. 1993; Meyer 1977; Pallas 2000).

1.3 Institutional Theories

The institutional theories of schooling effects argues that the association between schooling and individual outcomes is observed not because of schooling has

produced the effects through either a socialization or an allocation process, but rather because society has organized itself in such a way as to create this association (Meyer 1977, 1985).

Thus, the model attributes the associations between educational attainment and individual outcomes to the institutional authority of education in society. The association of the two domains results from the widespread belief that education transforms individuals rather than that it is a transformation itself. These theories focus on macro level processes rather than individual's qualities per se.

2 Effects of Education

Literature on educational impact on behavioural outcome suggests five effects.

1. Shapes Expectations for Intrinsic Rewards

Higher levels of education may indeed shape the expectations of workers from their jobs. Although higher educated individuals having more access to job conditions that promote job satisfaction, but the direct effect of education on job is negative since education raises workers' expectations. At a given level of reward, highly educated workers are not satisfied as the less educated workers (Ross and Reskin 1992).

Lindsay and Knox (1984) find that young adults with lower level of education attached greater importance to job availability, job security, and good pay. Johnson (2001), further, finds higher educated workers attach greater importance to prestige, advancement opportunities and of course pay. These two studies are similar in few of their findings. Lindsay and Knox argue that higher educated workers are less attracted to job availability and its security on the other hand Johnson concludes that less educated workers are more concerned for uncertainty in job.

Johnson and Elder Jr. (2002) hypothesize that higher education may foster among students an increasing desire for intrinsic rewards namely interesting job, use of skills and abilities, result oriented tasks, learning opportunity, and opportunity for creativity.

2. Shapes Expectations for Benefits from Employment

When an individual invests in human capital he expects a corresponding return for such investment, states Human Capital Theory (Becker 1975; Mincer 1974). Those individuals who invest more in human capital and attain higher levels of education, they expect higher returns in terms of benefits included in their pay package (Duncan 1976). The theory suggests that employees with higher degrees of education expect more benefits from the organisation than their less educated peers do.

3. Effect on Work Attitudes

Each of the three dimensions of educational stratification (tenure, stream and degree) has its distinct impact on individual attitudes. Davis (1979) finds a

significant relationship between years of education and a set of 49 attitudes. Those with longer education years, find their work more enjoyable, more challenging, and more interesting than their less educated peers (Beaton 1975). Ganzach (1998) corroborates Beaton by accepting the positive effect of intelligence and education on job satisfaction. Brush et al. (1986) and Martin and Shehan (1989), however, do not find any significant correlation between education and job satisfaction. Gruenberg (1980) investigates the reason for increased job satisfaction in more educated persons; the individuals having higher education may be socialized to have different expectations from their work.

Kohn (1969) speculates that education produces intellectual flexibility and breadth of perspective necessary for valuing self-direction. Therefore, the more an individual is educated the more he/she likes to hold complex jobs that are not closely supervised. Link et al. (1993) also find that college graduates are three times more likely to hold a job involving direction, control, and planning in comparison to their non-graduate peers. Ross and Reskin (1992), in the same line of Link et al. (1993) demonstrate that graduates are less likely to engage in routine work, they prefer autonomy at the job, and more control over their work and that of others even when socio-demographic factors (race, age, and sex) are controlled.

Ross and Van Willingen (1997) study another work attitude in relation with educational attainment. They find more alienation in less educated workers in comparison to their high educated fellow workers.

Hierarchy of educational attainments, in other words investments in human capital, is significantly related with hierarchy of occupational positions and expectations of benefits to be derived wherefrom (Becker 1975; Kerckhoff 2000; Mincer 1974). The research conducted by Arvey et al. (1991) and Vecchio (1981) also supports the reward expectation model.

4. Effect on Employees‘ Higher Order Need Strength

Maslow (1954) describes higher order needs as less imperative and subjectively unimportant needs, but their gratification produce more desirable subjective results. Higher order needs, however, are valued more by those who have been gratified in both lower order and higher order needs (pp. 147–150).

Hackman and Lawler (1971) affirm Maslow. They observed that lower order needs (physical and security) are often well satisfied in contemporary society, these needs, therefore, do not serve as motivational incentives except under unusual circumstances. Higher order (personal growth and development or feelings of worthwhile accomplishment) needs' satisfaction, though entails major cost in any motivational approach, motivates individual on a continuing basis. However motivational approaches based on growth and development needs and feelings of worthwhile accomplishment cannot be applied indiscriminately because all employees do not respond similarly to opportunities for the satisfaction of higher order needs.

Warr et al. (1979) differentiate higher order need strength from intrinsic job motivation. They argue that the later relates only to a specific job situation whereas higher order need strength is viewed as a dispositional characteristics extending across jobs.

5. Effect on Work-Related Values

Knox et al. (1993) and Meyer (1997) Conclude that education have direct influence on work values because, students during their education also learn the values, attitudes and activities appropriate to their new social status.

Lindsay and Knox (1984) find young adults with lower levels of education attached greater importance to extrinsic rewards (job availability, job security, and good pay) in comparison to their high educated peers. Johnson (2001), however, contradicts the result after measuring the importance of prestige, advancement opportunity, and pay.

Johnson and Elder Jr. (2002) measure the importance of following values for work namely, extrinsic rewards, security, intrinsic rewards, influence, altruistic rewards, social rewards, and leisure. They conclude that educational attainment has both direct and indirect impact on work values.

These three theories of education along with educational impact on work related values and attitudinal responses to the common stimuli present in the organisation suggest strong connection among themselves. The present study is premised on the same rationale (Fig. 1).

Existing literature on educational impact on individual's behavioural outcome envisaged the rationale of this study. In order to establish the rationale the study aims at ascertainment of the effect of education (tenure, stream, and degree) on

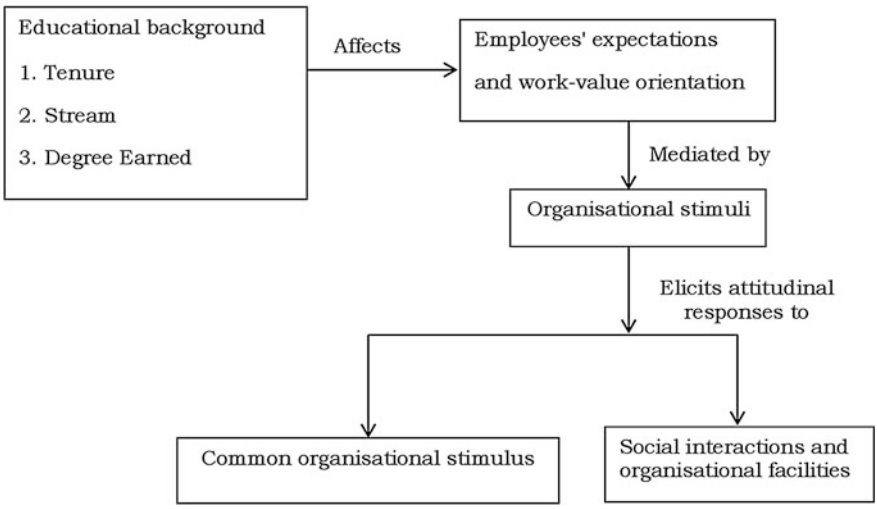

Fig. 1 Rationale of the study

employees' attitudinal responses. Impact of social interactions and organizational facilities has not been discussed in the present study.

On the foundation of theories developed by eminent educationists and behaviourists, and for attaining the abovementioned objective, it may be hypothesized that:

Hypothesis 1 Education (tenure, stream and degree) of employees is a mediator in their attitudinal responses to organisational stimuli.

Hypothesis 2 Educational background of employees influences their higher order needs' strength.

In order to solicit the educational background of the respondents, few simple questions on normative scale were included in the questionnaire. Respondents were requested to mention the year in which they had passed class XII and the year when he/she had finished studies. They were also requested to mention the gap in studies after class XII. In order to calculate the tenure of studies, the gap was deducted from the sum of 12 years and number of years after passing of class XII. The study did not consider the disturbances before passing class XII because it was assumed that despite the irregularity they would have remained in educational environment. Respondents were grouped into three categories. First, who have secured education for up to 15 years; second, who have secured it for a period between 15 and 17 years, and third, who have been educated for a period longer than 17 years. The rational for segregating respondents was to classify the tenure up to Graduation, Post-Graduation and a degree that requires a longer tenure.

The stream of education was determined in the study on the basis of respondents' bachelor's degree. Bachelor in Business Administration and Bachelor in Commerce were taken together because of their similar nature and very less number of respondents (three) who had pursued Bachelor in Business Administration.

Further, the respondents were solicited for their highest degree. It was categorized as Graduation, Post-Graduation, and any professional degree. No discrimination among the streams of education was made while deciding upon the highest degree.

Respondents of the sample were segregated according to the number of years that they had invested in their education; the stream of education that they had chosen in their Graduation; and the highest degree that they had earned during their education. Those respondents who secured education for less than or equal to 15 years were put into EYG1; those who were educated for 16–17 years were put into EYG 2. Further, those who were in education for more than 17 years constitute EYG3.

Work attitudes and higher order need strength were measured on the five-point Likert-scale with the scales suggested by Hackman and Lawler III (1971); Kahl (1965); Jones (1986); Frese et al. (1997); Organ and Konovsky (1989).

120 out of 282 (42.55 %) employees were in education for less than 15 years; 52.80 % female in comparison to 36.20 % male employees represented EYG1. 90 (31.91 %) respondents belong to EYG2, whereas 72 (25.53 %) were in EYG3.

No employee of age group up to 25 years was in EYG1. However 54.40 % of employees of age band 46–60 years were in the same educational tenure. Unmarried employees, in comparison to married ones, were found significantly higher (x^2 = 21.45; df = 2; $P < 0.001$) in longer educational tenure (Table 1).

2.1 Response to Autonomy

Response to autonomy was analysed through quality internalization, self-efficacy, and personal initiative at workplace. Average score of concern for quality of work in the sample is 9.24 (SD 0.91) scaling from 1 to 10 on Likert's scale. However, the average ranges between 8.42 and 9.62 depending upon different groups of strata (Tables 2, 3 and 4). The variance among the groups is significant in respondents when grouped according to educational tenure (F = 6.55; $P < 0.001$) and stream of education (F = 11.09; $P < 0.001$). When the sample of respondents was segregated in accordance with the highest degree earned by them (Table 4), it fetched no significant difference (F = 1.57; $P > 0.05$) among those who are Graduate, Post Graduate or a professional degree holder. Average quality concern in EYG2 is significantly different from EYG1 and EYG3 (Table 2).

2.1.1 Quality Internalization

Awareness for quality of work is also significantly different among employees from each stream of education. It was the maximum in those who were Graduate in Humanities and minimum in those who were Graduate in Technology or Engineering (Table 3).

2.1.2 Self-efficacy

Average score of self-efficacy in the sample was 23.34 (SD = 2.69). Amongst the respective groups it is minimum in EYG3 (Mean = 22.75; SD = 2.16); those who have earned Graduation in Technology or Engineering (Mean = 22.60; SD = 2.51); and those who are professional degree holders (Mean = 22.79; SD = 2.62). The group-wise maximum average scores of the construct are 24.07 (SD = 3.17) in EYG2; 23.95 (SD = 3.01) in Graduates in Humanities; and 23.71 (SD = 2.68) in Graduates (Tables 2, 3 and 4).

The average score of the construct is significantly different (F = 5.47; $P < 0.01$) in the sample. Post hoc test suggests significant difference in self-efficacy of EYG1, EYG2 and EYG3. The difference, however, is not significant (F = 2.29; $P > 0.05$) among employees from different streams. Self-efficacy is found significantly high (F = 3.44; $P < 0.05$) in Graduates in comparison to professional degree holders.

Table 1 Characteristics of the sample according to educational background

Category	Sub-category	Educational tenure			Educational stream				Highest degree			Total
		≤15	16–17	>17	Commerce	Humanities	Science	B.Tech /B. E.	Graduation	Post-Graduation	Professional degree	
Age	≤25	0	15	9	9	6	0	9	0	3	21	24
		0.0 %	62.5 %	37.5 %	37.5 %	25.0 %	0.0 %	37.5 %	0.0 %	12.5 %	87.5 %	100.0
	26–45	27	24	36	33	30	21	3	30	15	42	87
		31.0 %	27.6 %	41.4 %	37.9 %	34.5 %	24.1 %	3.4 %	34.5 %	17.2 %	48.3 %	100.0
	46–60	93	51	27	105	27	36	3	93	39	42	171
		54.4 %	29.8 %	15.8 %	61.4 %	15.8 %	21.1 %	1.8 %	54.4 %	22.8 %	48.2 %	100.0
Gender	Male	63	51	60	87	33	39	15	54	36	84	174
		36.2 %	29.3 %	34.5 %	50.0 %	19.0 %	22.4 %	8.6 %	31.0 %	20.7 %	48.3 %	100.0
	Female	57	39	12	60	30	18	0	69	21	18	108
		52.8 %	36.1 %	11.1 %	55.6 %	27.8 %	16.7 %	0.0 %	63.9 %	19.4 %	16.7 %	100.0
Marital status	Married	114	66	54	126	54	48	6	111	51	72	234
		48.7 %	28.2 %	23.1 %	53.8 %	23.1 %	20.5 %	2.6 %	47.4 %	21.8	30.8 %	100.0
	Unmarried	6	24	18	21	9	9	9	12	6	30	48
		12.5 %	50.0 %	37.5 %	43.8 %	18.8 %	18.8 %	18.8 %	25.0 %	12.5 %	62.5 %	100.0
Total		120	90	72	147	63	57	15	123	57	102	282
Percentage		42.6 %	31.9 %	25.5 %	52.1 %	22.3 %	20.2 %	5.3 %	43.6 %	20.2 %	36.2 %	100.0

Table 2 Descriptive statistics of respondents according to the tenure of education

Sl. no.	Dependent variables	Educational years											
		≤15 (N = 120)			16–17 (N = 90)			>17 (N = 72)			Total (N = 282)		
		Range	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD
1	Response to autonomy	33–52	43.42	4.35	37–54	45.53	4.46	33–49	44.08	4.04	33–54	44.27	4.39
	a. Quality concern	7–10	9.20	1.01	8–10	9.50	0.62	7–10	9.00	0.96	7–10	9.24	0.91
	b. Self-efficacy	18–30	23.15	2.49	17–30	24.07	3.17	18–29	22.75	2.16	17–30	23.34	2.69
	c. Personal initiative at work	2–20	11.08	4.09	4–20	11.97	4.54	6–16	12.33	3.19	2–20	11.68	4.06
2	Job-satisfaction	14–30	24.02	4.03	16–30	23.17	3.48	13–30	23.12	5.20	13–30	23.52	4.21
	a. General	2–6	5.30	1.21	2–6	4.53	1.46	2–6	4.62	1.48	2–6	4.88	1.41
	b. Specific	10–24	18.72	3.31	14–24	18.63	2.84	11–24	18.50	3.99	10–24	18.64	3.35
3	Achievement orientation	19–29	23.52	2.56	20–27	23.60	1.85	20–29	23.00	2.34	19–29	23.41	2.30
	a. Activism	9–16	12.52	1.54	9–19	12.83	1.87	9–18	12.83	2.06	9–19	12.70	1.80
	b. Occupational primacy	6–15	10.98	2.43	6–14	10.77	2.01	6–15	10.21	2.43	6–15	10.71	2.32
4	Higher order need strength	6–12	9.90	1.57	8–12	9.77	1.29	6–12	9.62	1.90	6–12	9.79	1.58
5	Organizational citizenship behaviour	25–41	34.30	3.74	28–41	33.50	3.24	21–38	33.17	4.03	21–41	33.76	3.69
6	Retaliatory behaviour	14–31	18.05	4.70	14–30	19.30	5.03	14–36	22.25	6.59	14–36	19.52	5.58
7	Cognitive evaluation of pay and job	12–40	29.35	7.20	19–40	28.67	4.73	08–40	24.96	1027	08–40	28.01	7.68
8	Intrinsic motivation	7–15	13.35	1.64	12–15	13.77	1.26	4–15	12.33	3.05	4–15	13.22	2.08
9	Job-involvement	6–15	10.90	2.10	6–15	11.10	2.36	4–15	10.21	2.73	4–15	10.79	2.37

2.1.3 Personal Initiative

Average score of personal initiative at work is 11.68 (SD = 4.06) on Likert's scale having maximum score 20. Group wise maximum average is 12.33 (SD = 3.19) in EYG3, 15.40 (SD = 0.83) in those who are Graduates in Technology or Engineering and 12.94 (SD = 3.48) in professional degree holders. The average, however is minimum in those who are in EYG1 (Mean = 11.08; SD = 4.09); who are Graduate in Humanities (Mean = 10.90; SD = 4.08); and who are Post-Graduate (Mean = 10.37; SD = 3.82) (Tables 2, 3 and 4).

When analysis of variance was performed on the sample; it showed no significant difference among respondents grouped according to their education years ($F = 2.52$; $P > 0.05$). Personal initiative, however, is significantly different among individuals from different streams of education ($F = 6.57$; $P < 0.001$). Science Graduates are significantly high in personal initiative than those in Commerce and Management Graduates, and those who were Graduate in Humanities. Those who were B. Tech or B.E. were reported to have taken significantly high initiative than Commerce and Management Graduates, and Graduates in Humanities and Graduate in Science. Personal initiative was found significantly different ($F = 9.10$; $P < 0.001$) in accordance with highest degree earned by the individuals (Table 4).

Sum of quality concern, self-efficacy, and personal initiative at work was averaged in the sample for seeking the response to autonomy at work. The Average score of the construct in the sample is 44.27 (SD = 4.39) on a scale ranging from 12 to 60. Employees in EYG2 were the highest (Mean = 45.53; SD = 4.46) among the corresponding groups. Graduates in Technology or Engineering were the highest (Mean = 46.40; SD = 2.67) among all streams. Professional degree holders are the highest (Mean = 44.8; SD = 4.08) in responding to autonomy provided to them in the organisation (Tables 2, 3 and 4). Minimum average responses among the various groups are 43.42 (SD = 4.35) in employees in EYG1; 43.60 (SD = 4.57) in Commerce and Management Graduates; and 43.21 (SD = 5.06) in Post-Graduate employees (Tables 2, 3 and 4).

The average response to autonomy in employees who had finished their education in 16–17 years (EYG2) is significantly higher than those who were educated for less than or equal to 15 years (EYG1) or more than 17 years (EYG3). Inter-group difference in response to autonomy according to educational tenure was found significant ($F = 6.24$; $P < 0.01$) in the study. Respondents grouped according to their stream of education, however, do not vary significantly ($F = 1.48$; $P > 0.05$). Higher degree earned by individuals also do not significantly influence ($F = 2.59$; $P > 0.05$) the response by them to the autonomy in the organisation.

2.2 Job-Satisfaction

Average job-satisfaction (Mean = 23.52; SD = 4.21) in the employees consists of their General satisfaction (Mean = 4.88; SD = 1.41) and Specific satisfaction

Table 3 Descriptive statistics of respondents according to the stream of education

Sl. no.	Dependent variables	Stream of education														
		Commerce and Mgt Graduates (N = 147)			Graduates in humanities (N = 63)			Graduates in Science (N = 57)			Graduates in Tech/Engineering (N = 15)			Total (N = 282)		
		Range	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD
1	Response to autonomy	33–52	43.96	4.57	39–51	44.48	3.69	33–54	44.26	4.87	42–50	46.40	2.67	33–54	44.27	4.39
	a. Quality concern	7–10	9.29	0.91	8–10	9.62	0.66	7–10	8.95	0.01	8–9	8.42	0.51	7–10	9.24	0.91
	b. Self-efficacy	17–30	23.37	2.55	19–30	23.95	3.01	18–30	22.79	2.63	18–25	22.60	2.51	17–30	23.34	2.69
	c. Personal initiative at work	2–20	11.31	4.24	4–20	10.90	4.08	6–16	12.53	3.42	14–16	15.40	0.83	2–20	11.68	4.06
2	Job-satisfaction	15–30	23.78	3.73	16–30	23.62	4.25	14–29	24.42	4.41	13–21	17.20	2.65	13–30	23.52	4.21
	a. General	2–6	5.06	1.19	2–6	4.86	1.40	2–6	5.05	1.48	2–5	2.60	1.24	2–6	4.88	1.41
	b. Specific	10–24	18.71	3.20	12–24	18.76	3.25	12–23	19.37	3.48	11–16	14.60	1.92	10–24	18.64	3.35
3	Achievement orientation	19–29	23.12	2.29	20–27	24.43	2.12	20–27	23.21	1.81	20–29	22.80	3.55	19–29	23.41	2.31
	a. Activism	9–16	12.45	1.57	9–16	12.90	2.04	9–16	12.84	1.83	12–19	13.80	2.21	9–19	12.70	1.79
	b. Occupational primacy	6–15	10.65	2.00	7–15	11.52	2.26	6–15	10.42	2.89	7–11	9.00	1.85	6–15	10.71	2.32
4	Higher order need strength	6–12	9.92	4.42	7–12	10.05	1.47	6–12	9.68	1.82	6–9	7.8	1.21	6–12	9.79	1.58
5	Organizational citizenship behaviour	25–41	34.12	3.93	29–40	34.24	2.78	29–37	33.79	2.37	21–33	28.00	4.09	21–41	33.76	3.69
6	Retaliatory behaviour	14–28	18.24	4.61	14–36	20.62	6.45	14–35	20.63	5.88	14–30	23.20	6.33	14–36	19.52	5.58
7	Cognitive evaluation of pay and job	16–40	28.69	6.52	18–40	29.76	6.95	12–40	28.42	7.49	08–21	12.40	4.75	08–40	28.01	7.68
8	Intrinsic motivation	10–15	13.53	1.39	07–15	13.67	1.90	07–15	12.79	2.30	04–13	10.00	3.93	04–15	13.22	2.08
9	Job-involvement	6–15	10.76	2.41	7–15	11.29	2.11	6–15	11.42	2.32	4–08	6.60	1.55	4–15	10.79	2.37

(Mean = 18.64; SD = 3.35) from job. Those employees who represented EYG1 were the most satisfied ones (Mean = 24.02; SD = 4.03) among all educational year groups (Table 2). Science-Graduates are the most satisfied (Mean = 24.42; SD = 4.41) among employees from all streams (Table 3). Post-Graduate staff members are the most satisfied employees (Mean = 24.26; SD = 3.71) among their corresponding categories (Table 4). On the other hand, least satisfied groups are those who belong to EYG3 (Mean = 23.12; SD = 5.20) (Table 2), those who are B. Tech or B.E. (Mean = 17.20; SD = 2.65) (Table 3) and those who hold a professional degree (Mean = 22.56; SD = 5.19) (Table 4).

Although specific (F = 0.10; $P > 0.05$) and overall job satisfaction (F = 1.5; $P > 0.05$) do not significantly vary among various groups on the basis of educational years but general satisfaction among those who are in EYG1 is significantly higher than other two groups; it is, therefore, significantly different in the sample as well (F = 9.83, $P < 0.001$).

When the sample is analysed on the basis of stream of education of employees, it revealed significant difference among their general job-satisfaction (F = 16.57; $P < 0.001$), specific job satisfaction (F = 8.89; $P < 0.001$), and overall job satisfaction (F = 14.04, $P < 0.001$). Those employees who are in the organisation after completing B.Tech or B.E. are significantly less satisfied among those from all other streams.

General job-satisfaction among the respondents grouped on the basis of highest degree earned does not vary significantly (F = 2.68; $P > 0.05$). Professional degree holders are significantly low in specific job satisfaction than Graduate and Post-Graduates of the Bank that brought a significant variance in the construct in the sample (F = 4.8; $P < 0.01$) and also in overall job satisfaction (F = 4.37; $P < 0.05$).

2.3 Achievement Orientation

Average achievement orientation in the sample is 23.41 (SD = 2.30). Average score of its constituents namely activism and occupational primacy is 12.70 (SD = 1.80) and 10.71 (SD = 2.32) respectively. Neither achievement orientation (F = 1.60, $P > 0.05$) nor its constituents, say activism (F = 1.02; $P > 0.05$) and occupational primacy (F = 2.52; $P > 0.05$), are significantly affected by tenure of education in the sample (Table 2).

Achievement orientation, however, is significantly higher in the employees who are graduate in Humanities than all the graduates; it results in significant variance in the sample (F = 5.63, $P < 0.01$). Activism is found significantly high in B.Tech or B.E. in comparison to those who are graduate in Commerce or Management; the sample also vary on achievement orientation (F = 3.31, $P < 0.05$). Occupational primacy is significantly different (F = 5.93; $P < 0.01$) in employees from various streams. Graduates in Humanities (Mean = 11.52; SD = 2.26) are significantly higher in occupational primacy in comparison to those who are graduate in any

Table 4 Descriptive statistics of respondents according to the highest degree earned

Sl. no.	Dependent variables	Highest degree earned											
		Graduates (N = 123)			Post Graduates (N = 57)			Professional degree holders (N = 102)			Total (N = 282)		
		Range	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD
1	Response to autonomy	36–52	44.27	4.25	33–54	43.21	5.06	33–51	44.85	4.08	33–54	44.27	4.39
	a. Quality concern	7–10	9.32	0.87	7–10	9.32	0.93	7–10	9.12	0.94	7–10	9.24	0.91
	b. Self-efficacy	18–30	23.71	2.68	19–30	23.53	2.73	17–30	22.79	2.62	17–30	23.34	2.69
	c. Personal initiative at work	2–20	11.24	4.35	4–16	10.37	3.82	4–20	12.94	3.48	2–20	11.68	4.06
2	Job-satisfaction	15–30	23.98	3.32	16–30	24.26	3.71	13–30	22.56	5.19	13–30	23.52	4.21
	a. General	2–6	5.10	1.27	2–6	4.79	1.45	2–6	4.68	1.52	2–6	4.88	1.41
	b. Specific	11–24	18.88	2.81	14–24	19.47	2.82	10–24	17.88	4.04	10–24	18.64	3.35
3	Achievement orientation	19–29	23.44	2.42	21–27	24.11	1.93	19–29	23.00	2.27	19–29	23.41	2.30
	a. Activism	9–16	12.54	1.37	10–19	12.95	2.06	9–18	12.76	2.07	9–19	12.70	1.8
	b. Occupational primacy	6–15	10.88	2.37	7–15	11.16	2.36	6–14	10.26	2.17	6–15	10.71	2.32
4	Higher order need strength	6–12	9.98	1.43	8–12	10.00	1.27	6–12	9.44	1.84	6–12	9.79	1.58
5	Organizational citizenship behaviour	25–41	34.24	3.52	29–40	33.84	2.99	21–41	33.12	4.15	21–41	33.76	3.69
6	Retaliatory behaviour	14–28	18.44	4.59	14–36	19.74	5.91	14–35	20.71	6.25	14–36	19.52	5.58
7	Cognitive evaluation of pay and job	16–50	31.12	5.91	15–40	28.68	6.57	08–40	23.88	8.29	08–50	28.01	7.68
8	Intrinsic motivation	12–15	13.66	1.23	10–15	13.58	1.58	04–15	12.50	2.82	04–15	13.22	2.08
9	Job-involvement	6–15	10.76	2.27	9–15	11.42	1.65	4–15	10.47	2.76	4–15	10.79	2.37

other discipline. The employees who have earned their Graduation in Technology or Engineering are found significantly low (Mean = 9.00; SD = 1.85) in occupational primacy than all other graduates (Table 3).

Although activism do not significantly differ (F = 2.68; $P > 0.05$) in employees due to their highest degree but, achievement orientation (F = 4.32; $P < 0.05$) and occupational primacy (F = 3.32; $P < 0.05$) do vary significantly. Professional degree holders lag behind in both the constructs from Post-Graduate employees. Graduate employees however, have less occupational primacy than post-graduate ones (Table 4).

2.4 Higher Order Need Strength

Average higher order need strength in the sample is 9.79 (SD = 1.58) on the scale with maximum possible score 12. Although the average scores of different groups on the basis of tenure of education ranges between 9.62 (SD = 1.90) in respondents in EYG3 to 9.90 (SD = 1.57) in employees in EYG1. No significant difference (F = 0.69; $P > 0.05$) is found among the educational year groups (Table 2).

The average score of the construct is found significantly different (F = 9.72; $P < 0.001$) in employees from various streams of education. Graduates in Technology or Engineering (Mean = 7.8; SD = 1.21) are found significantly low higher order need strength among all the employees (Table 3).

When the sample is categorized according to the highest degree earned by the respondents those who have a professional degree scored the least (Mean = 9.44, SD = 1.84) in the higher order need strength; it is significantly different from Graduates (Mean = 9.98; SD = 1.43) and Post-Graduates (Mean = 10.00, SD = 1.27). Mean score of the higher order need strength among respondents having different levels of education significantly vary (F = 3.92, $P < 0.05$) in the study (Table 4).

2.5 Organisational Citizenship Behaviour

Average score of organisational citizenship in the sample was 33.76 (SD = 3.69) on the scale having maximum point 40. It is evident from the analysis of variance that educational tenure of employees does not significantly influence (F = 2.47, $P > 0.05$) their organisational citizenship (Table 2).

Those who are Graduate in Technology or Engineering (Mean = 28.00, SD = 4.09) scored significantly low in citizenship behaviour than that of their colleagues (Table 3). The study reveals a significant difference (F = 14.97; $P < 0.001$) in the behaviour among various educational streams. On the other hand highest degree earned by an employee does not affect his citizenship behaviour (F = 2.65, $P > 0.05$) (Table 4).

2.6 Organisational Retaliatory Behaviour

Average organisational retaliatory behaviour in the sample is 19.52 (SD = 5.58) on the scale ranging from 14 to 70. It is significantly high in EYG3 (Table 2) and significantly varies in the study (F = 14.02; $P < 0.001$) when respondents are classified as per their educational tenure. Further, when respondents in the sample are segregated according to their discipline of education, significant difference is found (F = 6.67; $P < 0.001$) in the retaliatory behaviour. It is due to the difference between Commerce and Management Graduates (Mean = 18.24, SD = 4.61) and other branches of education (Table 3). Professional degree holders (Mean = 20.71; SD = 6.25), however, score significantly high retaliation in comparison to that in Graduates (Mean = 18.44, SD = 4.59); significant variation is found in the behaviour (F = 4.77, $P < 0.01$) when respondents are grouped according to level of education (Table 4).

2.7 Cognitive Appraisal of Pay and Job

Average cognitive appraisal of pay and job in the sample of employees is 28.01 (SD = 7.68) on the scale ranging from 8 to 40. Those who are in EYG3 (Mean = 24.96, SD = 10.27) found significantly less satisfied with their compensation and job in comparison with their fellows (Table 2); the educational tenure groups also vary significantly (F = 8.24, $P < 0.001$). When the sample is segregated according to the stream of education, it is found that those who are Graduate in Technology or Engineering (Mean = 12.40, SD = 4.75) are significantly least satisfied with their compensation and job (F = 28.77, $P < 0.001$) when compared with their peers (Table 3). Highest degree earned by the individual also significantly affect the construct (F = 30.26, $P < 0.001$). Professional degree holders (Mean = 23.88, SD = 8.29) are the least in satisfaction with their compensation and job match. Their difference with Graduates and Post-Graduates is significant. Further, the difference of mean satisfaction in Graduates and Post-Graduates is also significant (Table 4).

2.8 Intrinsic Motivation

Average intrinsic motivation in the sample is 13.22 (SD = 2.08) on the scale ranging from 3 to 15. It is significantly low in those who belong to EYG3 than the other two groups (Table 2); sample variation, therefore is also found significant (F = 10.58, $P < 0.001$).

When respondents are segregated according to respective streams of education those employees who are holding B.Tech or B.E. are found least motivated

(Mean = 10.00, SD = 3.93) among all other streams; hence, intrinsic motivation in the study varied significantly (F = 17.52, $P < 0.001$). Science Graduates are also significantly less satisfied than Commerce or Management Graduates (Table 3). Professional degree holders (Mean = 12.50, SD = 2.82) are found significantly less motivated than graduates (Mean = 13.66, SD = 1.23) and post-graduates (Mean = 11.42, SD = 1.65) (Table 4). It causes a significant variation in the construct among them (F = 10.36, $P < 0.001$).

2.9 Job-Involvement

Average job involvement of the respondent is 10.79 (SD = 2.37) on a scale ranging from 3 to 15. It is significantly less (F = 3.11, $P < 0.05$) in those who are in EYG3 than in the two other groups (Table 2). Those respondents who are Graduate in Technology or Engineering are found least involved in their jobs (Mean = 6.60, SD = 1.55); they are significantly different from all other group members (F = 21.82, $P < 0.001$). Significant difference is also found between Commerce and Management Graduates (Mean = 10.76, SD = 2.41) and Science Graduates (Mean = 11.42, SD = 2.32) (Table 3). Job-involvement in professional degree holders was found significantly less (F = 3.02, $P < 0.05$) than that in post-graduates in the sample (Table 4).

3 Discussion

Empirical results of the study suggest that tenure of education mediates work attitudes in employees; though their job satisfaction and citizenship behaviour do not significantly vary due to the set of stimuli in the organisation. If we segregate the employees on the basis of their corresponding streams of education, we find their distinct responses to variety of stimulus in the workplace except their uniform high response to autonomy. Level of education (Graduation, Post-Graduation, and professional degree), again does not bring in any significant variation in employees' high sensitivity to autonomy and citizenship behaviour. It has been found in the sample that engineering graduates and professional degree holders are not satisfied with their job mainly because of less autonomy in work. Perhaps this is why they lag far behind their colleagues in positive work attitudes. Weak positive work attitudes dampen intrinsic motivation and eventually achievement orientation. It may gradually enhance retaliatory behaviour in employees that causes serious consequences for the organization.

It may be inferred from the study that educational background of employees is a significant factor in determination of their expectation for opportunity of creatively, cooperation with other people, peaceful and settled job, being resourceful, working

in a company led by capable experts. Hence, while designing the work for them, it should be kept in consideration.

The present study is subject to certain lacunas. It was binding to include Management graduates in Commerce graduates because of their small sample size; even then enough representatives of all value orientations from all streams could not be found. Moreover, the study suffers sound literature support on effect of these three dimensions (tenure, stream, and level) on employees' response to a particular stimulus.

Despite all these limitations it is an attempt to identify the educational impact on individual expectations from the organisation. It deals with educational impact on five major work attitudes (job satisfaction, job involvement, intrinsic motivation, organizational citizenship behaviour, and organizational retaliatory behaviour) along with response to autonomy, higher order need strength and achievement orientation that may be helpful in organizing and identifying the most responding set of stimuli and the most appropriate group of employees who would respond to it in the most positive manner.

Thus it may be concluded that education has significant influence on employees' work attitudes, even though the dimensions like as tenure, stream and level have their different and significant effect on individual attitudes. Further, job-satisfaction is the most evident attitude that an employee has in response to any stimulus.

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Corporate Social Responsibility Role in SMEs: A Critical Way of Thinking in Green and Lean Management Arena

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Abstract Green and lean management is one of the higher challenges that today's organizations are facing. However, and in order to better answer to these new challenges and develop new ways of management, organizations need to develop new ways of thinking as well as be more responsible in the society and environment where they are present. Taking into account the importance that the concept of social responsibility assumes in organizations, this present chapter looks to study the way in which corporate social responsibility is implemented in organizations, with a special emphasis to SMEs, in order to develop the green and lean management philosophy.

1 Introduction

The growing technological development had led to a great dissemination of information and, consequently, to a great people awareness about the world problems. Issues not considered until now have acquired great proportions as well as a continuous visibility, becoming, inevitably, a focus of concern. Seen as a characteristic of nowadays environment, globalization has been served as a vehicle to open the doors and the discussion of some subjects that although its relevance are frequently ignored. At this level human resource management (HRM) and corporate social responsibility (CSR) are subjects that have been acquiring a great relevance both at the organizational level and within the daily life. Day after day we are giving more relevance to the role that people perform in organizations, which led to a HRM growing recognition, particularly in the academic community where we can find a considerable amount of studies relate to these issues. However, when we look to relate HRM with small and medium sized enterprises (SME) and/or CSR issues the studies that we find are very scarce, focusing, particularly, case studies.

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In what concerns Portugal, knowing that near to 99 % of the Portuguese organizations are SMEs (European Commission 2014) it is a little strange that an insufficient attention had hardly been addressed to HRM issues in these organizations. The same happens with CSR issues. This subject has been called the attention of everybody, particularly managers due to these organizations target public awareness in what concerns the issues related to sustainability and lean and green management. As costumers, at the present everybody became more exigent asking for products and/or services with excellence and quality.

Taking into account globalization, continuous market changes and the great stakeholders' openness to sustainable issues, SMEs need to adjust to this changing environment. In order to answer to these new exigencies, we need to highlight HRM and CSR relevance. The first will allow a great flexibility of the organization structure, the acquisition and retention of qualified collaborators, allowing to known the stakeholders needs and requests. By its side, the second one will cooperate to the economic, social, politic and environmental objectives fulfilment, working as a link between HRM and the projects that will be implemented.

With this chapter we look to study SMEs relevance in adopting CSR behaviors as well as understand how it can influence its dynamics and maintenance in a changing market that requires fast adjustments in order to aim lean and green management.

2 SMEs Relevance

According to the European concept SMEs are organizations that employ less than 250 employees and present an annual business volume that doesn't exceed 50 million euros or whose annual global balance doesn't exceed 43 million euros (Comissão Europeia 2003).

SMEs are characterized by having a simple organizational structure, with limited human and financial resources, as well as its access to technology and innovation. In this kind of organizations it prevails a close' market and costumer proximity, existing a relative flexibility and adaptability to the external environment change.

SMEs also represent a high number of contributions to the world economy as, according to the European Union data, micro organizations represent 90 % of the European organizations while small and medium organizations represent, respectively, 7 and 1 %; employing about 21 million persons, which correspond to 17 % of the private European work force (Comissão Europeia 2003). In what concerns its main contributions, we can highly the creation of new jobs; source of considerable innovation activities; entrepreneurial and competitiveness development; higher flexibility to industrial structure, promoting dynamism in the economy, among others.

This problem led us to the construction of a pertinent hypothesis, namely, being Portugal a country where 99.9 % of its organizations are SMEs, doesn't these small

organizations have financial possibilities to bet part of its resources in sustainable and social responsible practices? Looking to answer to this question, other questions arise, namely: what is social responsibility? What does it include? How does it appear? What is the organizations responsibility to nowadays social and environmental problems?

3 What Do We Understand by Corporate Social Responsibility?

Rather than a fashion CSR is today one of the cornerstones of the future organizational sustainability. We have moved through the phase where organizations gave donations of goods and/or money to deprived institutions. Nowadays we are one step ahead; we move to the incentive to the development of the surrounding communities. The challenge now consists in develop effective projects of protection of the environment as well as of support to the collectivity development based in mutual respect (Beirão et al. 2008). These authors also highlight that this kind of management oriented to the social component requires a solid and focused communication plan, making use of the different marketing and advertisement tools at its disposal.

Today, there exists a relative agreement about the principles related with the concept of CSR. However, and due to the high change ability of the concept there still exist some deviations when we deal with the different ways and methods of intervention from which organizations can act in social context.

According to the European Commission Green Book (Comissão das Comunidades Europeias 2001) CSR is a concept according to which organizations decide, in a voluntary base, to contribute to a better society and a cleaner environment. However, due to the national and international relevance of these issues, the growing adoption of CSR strategies by a great number of organizations and the this theme popularity which led to its presence in the European Union and many other countries political agenda, CSR concept was reformulated, becoming defined as "the organization responsibility by its impacts in society" (European Commission 2014, p. 7). With this definition the European Union places the responsibility to organizations in all matters that affect society. According to this assumption organizations management cannot be directed only to the fulfilment of its owners interests, but also to other stakeholders interest namely, employees, local communities, customers, suppliers, public authorities, competitors and the general society. Social responsibility is, this way, a behavior that organizations adopt voluntarily, beyond legal requirements, as they consider this is of its own interest in the long term. In other words CSR concept requires the voluntary adoption of measures beyond legal requirements; a sustainable development, i.e., activities at economic, environmental and social level; and a new organizational management conception (Santos et al. 2006). We can conclude that CSR exists when "organizations, managing its activities, incorporate the stakeholders concerns, interests and

benefits (…) and act accordingly developing a pro-active action towards the improvement of the existent conditions" (Santos et al. 2006, p. 24).

As previously mentioned, this concept is in a growing evolution which is highlighted by Zadek and Sabapathy [referred by Santos et al. (2006, p. 29)] when they identified three phases representing each one, respectively, the past, the present and the future:

1st phase: Non strategic CSR—in this phase the implemented measures looked to contribute to the organization commercial success. There were specific tasks that had as main aim the organization reputation improvement.

2nd phase: Strategic CSR—in this phase CSR is an integral part of the organization long term sustainable strategy. CSR represents a means of bringing relevant benefits to the organization. The leader direct commitment is the lever that allows the transition from the first to this second phase which is under development.

3rd phase: Competitive responsibility—this phase looks to intervene directly and integrated in problems such as poverty, social exclusion and environmental degradation. In order to reach this phase organizations should cooperate with other organizations, namely civil society and the public authorities, as to reach the establishment of a relationship among the society development, the organizations sustained growing and the country foster competitiveness.

From the above exposition it is easy to understand that are numerous the interpretations and definitions of CSR. At this level it is important to highlight that the first attempts about SR subject appear at the beginning of XX century, through the work of Charles Eliot, Arthur Hakley and John Clarck. However, such attempts didn't receive support as they were considered as socialist claims. The first studies that appear focusing this subject and that bring the attention to this problematic had beginning in the United States, at the decade of 50ths, arising to the Europe in the 60ths. It was only in 1953, in the United States, with Howard Bowen book "Social Responsibilities of the Businessman", that this subject had received attention and had changed in a new study field. CSR reveals then as a decisive factor to the organizations development and growth.

Narrowing this concept to a national level, Portuguese Government (Governo de Portugal n.d.) shows that the organizations CSR is the voluntary integration of social and environmental concerns in the organizations daily operations and in the interaction with all the parties concerned. This is a way to contribute positively to the society and manage the organization social and environmental impacts as a way to ensure and increase competitiveness. When we speak about the organizations CSR, we speak, usually, about household and industrial waste recycling, toners, plastics and paper recycling, but also about the respect for the people with whom we daily live and the support to the society (Governo de Portugal n.d.).

To briefly, although the different research that have been done and comparing with the subjects that belong to the human resources field, CSR theme is not yet very widespread and the available information is comparatively scarce. It becomes even more scarce if we research studies focusing Portuguese territory. The reason to

this reality results from the fact that in Portugal only in recent years discussions about sustainability and CSR are present in Portuguese organizations.

More recently we have been facing a change in the organizations values and attitudes which led to an evolution of the organizations global objectives. While, at the beginning, the main aim focused specifically on product sales; nowadays, and during the last years, we are facing an extension of these objectives to the communities and environment respect. This had awakened a new era and new concerns with sustainability. It is important to highlight that the organizations basic aims were not changed as these organizations only survive through its products sales. What have changed and suffered a great evolution in the last decades, in order to adapt to the new reality and the new type of client, were the strategies established to achieve these objectives (Beirão et al. 2008).

Corporate social responsibility is one of the new market phenomenon resultant from the economy globalization. During historical cycles we have had the organization successively oriented to the product, the market and then the client. Now organization is oriented to social (Bicalho 2003). This kind of management oriented to the evolving communities growing requires a participative communication plan, using multiples communication and marketing tools (Beirão et al. 2008). Result of this strategy is that organizations utilize marketing, more and more, as a way to widespread its sustainable and CSR policies, as a way to inform the all society about the progress they have been doing at the same time they promote and advertise its brand.

4 Contributing Factors to Corporate Social Responsibility

Many are the factors that have contributed to CSR concept occurrence. In the globalization context there appear new concerns, specifically related to the environmental impact. More and more costumers adopt social criteria in their decisions. The environmental damages caused by economic activities also have generated growing concerns among citizens and diverse collective entities, pressing organizations to respect the environment requirements, demanding, at the same time, to the regulatory, legislative and governmental authorities the production of a suitable legal framework and the monitoring of its application. Media and modern information and communication technologies have been requiring a greater transparency to business and economic activity. This enabled us to rapidly acquire a thorough understanding of business behaviors, bearing organizations to adopt socially acceptable behaviors and practices.

According to Cabral-Cardoso (2002) CSR concept should be understood at internal and external levels. Internal level is related with employees and, more generally, with its stakeholders. The external level takes into account the consequences of the organization actions on its external components, namely the environment and its businesses partners.

5 Corporate Social Responsibility Relevance to Organizations

Has we have seen before nowadays it is unquestionable that organizations are under constant pressures in order to adopt ethic and socially responsible practices. Some of these pressures can find its origins (Rego et al. 2006):

- In costumers who, more and more, incorporate in their purchasing decisions environmental and social issues criteria;
- In court disputes that can be avoided;
- In lower rates of employees absenteeism;
- In higher indices of commitment, productivity, dedication and loyalty to organization;
- In higher amount of investors that give preference to ethical and social responsible organizations;
- Among others.

All these pressures result due to the greater society awareness. To the organizations the adoption of these policies is very important not only by the "good image" that they give to their stakeholders, but also because this is a way to avoid unnecessary costs at the same time that it can promote a good organizational climate and motivate its employees. Social responsibility also can be a competitive advantage to organizations as it can help organizations to reach market niches that were denied in the past, increasing, by this way, the organization competitiveness and improving its market position.

6 Corporate Social Responsibility Policies and Practices

At the European sphere, the European Union is one of the entities that give a great relevance to CSR, encouraging its research. The Green Book, entitled "Promote a European framework to the organizations CSR" (Comissão das Comunidades Europeias 2001), represents a relevant contribution to this subject debate. In this book they are exposed, among others, CSR policies and practices taking into account the organizations internal and external segments. This book sets out that, socially responsible practices at the organization internal segment (and as we have focused yet earlier), involve essentially employees, addressing issues such as human capital, health, security and change management investment. About the environmental responsible practices they concern, above all, to natural resources management used in the production process.

On the other hand, and as we also have seen before, in what concerns the organization external segment, the Green Book states that the organization CSR goes beyond its field, broadening to local community, covering shareholders,

Table 1 Corporate SR principles and actions

Corporate SR principles	Corporate SR actions
Corporate SR has a voluntary nature	Enhance the dissemination of corporate SR positive impact
Corporate SR balanced approach incorporating economic, social and environmental issues	Develop corporate SR share experiences and good practices, among organizations
Corporate SR practices require credibility and transparency	Promote the development of corporate SR management competencies
Emphasis in activities where communities involvement is an added value	Enhancing corporate SR tools transparency
Respect towards the rule of laws in vigor	Incorporate SR in community policies
Attention to SMEs specific needs	Fostering corporate SR in SMEs

Adapted from Rego et al. (2006, pp. 252–253)

clients, suppliers, public authorities, among others. European Union also highlight that these issues enable change management as well as reconciling social development with a reinforced competitiveness (Comissão das Comunidades Europeias 2001). This document still gives us a set of principles and actions that we need to follow (Table 1).

7 Corporate Social Responsibility Practices: Who Benefits?

People within the organizational environment are divided in categories. Some authors bring them together in two, three, four or more categories, claiming that organizations consider them as beneficiaries of its social responsible actions. Initially Bowen (1953) has suggested a classification that included four categories of people, namely, employees, consumers, lenders/suppliers and the community where the organization is integrated.

7.1 The Employees

Traditionally seen as a production factor, the employees are not regarded only such like that. On contrary, they should be understood by the organization as human beings who need to be respected and suitably rewarded by their contributions to the organization. These rewards do not relate only to the pecuniary value but also to the working conditions and the organizational environment.

7.2 The Clients

Understood as the main reason of its existence, this category is responsible for the organizational success and/or failure. What the consumer expects is that organizations can develop its products with high quality, give a warranty on all products, at the same time that must be loyal in its advertising as well as in the relationship established between the organization and its clients.

7.3 Lenders and Suppliers

In SMEs this category is highly necessary as it is very difficult to obtain resources to the organization. What lenders and suppliers expect from organizations is the fulfilment of stated deadlines amongst themselves, the loyalty and reciprocity in its businesses relations.

7.4 The Community

This category covers all persons who coexist, in one way or another, with the organization. It is established by different groups who expect from the organization social responsible behaviors. All of them have well defined interests and the organization, as a power institution within the society, is invited to solve these different group problems.

8 Critics to Corporate Social Responsibility Implementation

Often organization, through its administration, bet in non-profitable activities. At this level we can take as an example the concern expressed by some organizations with social problems, triggering significant improvements in the community quality of life. Unfailingly, these practices are quite good and encouraged. However, the stakeholders are not satisfied with this kind of practices as these measures don't earn profits to the organization. A study developed by Sebrae (2012) looked to obtain information, near 3.912 SMEs, about the importance of social responsible measures implementation. Results showed that 46 % of the organizations see social responsible practices as beneficial opportunities to organizations; 38 % of organizations have the opinion that these practices are neither favorable nor unfavorable; and finally, 16 % of the inquired organizations think that these practices only bring

costs and expenses to organizations. Agreeing with this last result, Friedman (1970) considers that the organization main aim must be the profit, without concerns with social responsibility. This is in these same terms that Carrol (1979) also looks to social responsibility, when she refers that in the organization social involvement the key question is *how much does it costs* the adoption of social responsible behaviors and not the mere fact of these behaviors adoption. So, and in what concerns to its social responsibility, beyond society expectations, organizations also need to evaluate the economic, legal and ethical issues.

From these developments results that in some organizations social responsible programs are implemented in order to entertain the society from ethical issues resultant from its central operations. Some of them develop social responsible programs in order to benefit from its reputation increase near the society and the government (Keys et al. 2009; Browne and Nuttall 2013). Those who are only interested in profit maximization are unable to defend the society interests as an all. The volunteerism in social responsibility practices implementation is also a key issue that requires a legislative regulation, contrary to the voluntary measures, in order to guarantee the organizations' social responsible behavior (Patten 1991).

9 HRM and CSR in SMEs

It is undiscussable the relevance and benefits of HRM and CSR to organizations. However, in what concerns SMEs, due, in same way, to its characteristics, they don't give to this issues the necessary attention and relevance.

Due to the difficulties that SME show in recruit and retain its collaborators as well as in support policies and practices with high costs—resulting from their limited financial resources—they rarely have the ability to implement HRM policies and practices (Melo and Machado 2015). These difficulties allow us to see that are scarce SMEs that have an HRM department or even professionals with qualifications that can help them managing everything that is related with this issue.

Attract and retain collaborators is one of the most important issues faced by SMEs as the policy of "choose the right person to the right place" can bring lots of advantages to the organization. According to Huselid (Haesli and Boxall 2005), the adoption of work practices that can increase performance—namely, careful recruitment and selection procedures, incentives to compensation, incentive to collaborators commitment and training—contribute to improve the organization and collaborators knowledge, competencies and abilities. This same author (Haesli and Boxall 2005) refers that this is possible as these practices adoption will increase motivation, reduce turnover and improve the retention ability of valuable collaborators. These policies are important as they help organizations finding competitive advantages.

Haesli and Boxall (2005) say that most of the competitive advantages are developed due to the organization human resources. This same idea is also

reinforced by Lado and Wilson (1994) when they refer that human resources can develop the organization natural competencies transforming them in competitive advantages.

In what concerns CSR in SMEs few of them make use of social responsible activities. A study developed by Santos et al. (2006) confirm that if there are social responsible practices in SMEs, these are informally implemented, assuming an occasional character. In other words, these practices are not within the scope of these SMEs business strategy. This SMEs position is a limitation to its own development. On contrary, when adopted, these practices are directly associated to a more efficient and effective management of the organization daily activities, which can lead to financial success. They also can open up new markets and contribute to costs reduction, as well as to the productivity improvement and the business capacity to innovate (Santos et al. 2006; Florea et al. 2013).

Beyond these economic benefits, these organizations, being more concerned with these practices, will have the change to know better its target public and its stakeholders, being able to answer to their demands in a more efficient and effective way. They will also contribute to the quality improvement and the environment preservation. They will be understood as an incentive and the right way to develop a green and lean management.

All these benefits will result in the SME image improvement, contributing to the achievement of competitive advantages.

It results that CSR is not limited to large organizations, which have enough resources to influence the environment and impose rules to do business according to social responsible principles. SMEs can, also, do it.

David Vogel, in his work "The market for virtue" (Vogel 2005) puts the following question "Does virtue pay?". The author says that, although the benefits of social responsibility to organizations (namely, high reputation, motivation, employees retention, among others), such benefits are often allusive and rarely affect the organization performance.

Nevertheless the benefits that can result from CSR practices development in SMEs, in fact these organizations face many difficulties in implementing CSR policies and practices due to different reasons, namely, a lack of understanding about CSR subject by entrepreneurs; the existence of a kind of thinking under which the improvement of initiatives to support social responsibility in SMEs; simply don't think in develop these kind of activities; the inexistence of a timely planning about the future; not consider the issue of social responsibility in the organization strategy; the inexistence of sufficient financial resources and time; some SMEs are unable to measure the impact that such policies and practices can bring to the organization (Silva and Santos 2012).

Even facing these obstacles and difficulties, we realize that any kind of social action is done by many SMEs, contributing to the development of the community where they operate.

Another scenario that has been changing refers to SMEs increasing connections with global companies, as well as the government growing control concerning issues related to social environmental responsibility.

A research developed by Sebrae (2012), with a sample of 3.900 SMEs, show us that 70 % of these organizations do a selective waste collection, 72 % control paper use and 81 % avoid water and energy waste. In most cases, these actions are adopted in a punctual way, untied from a sustainable strategy. This research also reveals the increase of entrepreneurs which understand sustainability as a source of differentiation and competitiveness.

Indeed, the implementation of sustainable measures still involves some additional costs. However, it I also true that this implementation also contributes to a reputation increase. This research points out that 79 % of those organizations believe that actions related with the environment help to increase the organization image in the market.

In what concerns the ability to answer to social questions, it is possible to observe that both, big organizations and SME, have a responsibility to the society where they belong, although some authors, such as Kobayashi, Odell, Steiner among others, direct their attention only to the study of big organizations, not waiting for the same action from SMEs.

10 Proposals to the Implementation of Social Responsible Practices in SMEs

Social responsible organizations take into account, in its decisions, the community where they belong and the environment where they operate. Some argue and defend that organizations, as a motor of economic, technological and human development, can only be completely realized when they consider, in its activities the respect to human rights, the investment in personal valorization, the environment protection, fighting corruption, the fulfillment of social working standards and the respect for values and ethical principles of the society where they belong (Governo de Portugal n.d.).

As we had seen before, SMEs have more and more a participation in the social responsible world, even though fewer in number when compared with big organizations. This is why it is necessary to implement solutions able to promote a great intervention of SMEs in this matter, namely:

- The creation and development of sustainable products and/or friends of environment;
- The social responsible concept improvement in big organizations, transferring it to its suppliers, and, consequently multiplying it to small businesses;
- To promote governmental measures in order to increase the development of social responsible measures. Social responsibility contributes to investors' attraction as many individual and institutional investors understand that income is more effective in social responsible organizations. Frequently used by big organizations, the advantages from tax deduction, under which organizations

could deduce in its taxes the amount used in social activities, could be greater to SMEs as a way to justify these measures development;
- To promote suppliers qualification related to social environmental rules fulfillment;
- Environment preservation, in other words, a waste correct use, energetic efficiency, preventing pollution and waste recycling, a better use of internal resources, are some of the practices that lead to a cost reduction at the same time that increase the organization viability and reputation;
- Internal and external communication of social environmental results, promoting, by this way, the information transparency;
- Employees consciously about social environmental practices;
- Employees training investment focusing social environmental practices;
- Support volunteer activities as well as other noble causes that contribute to help the organization community;
- Strengthening of relationships with the community and political power. SMEs frequently reveal a special activity to manage this relationship as its businesses constitute an integral and visible part of the community where they are inserted.

11 Final Remarks

Considering that SMEs develop their activities looking to short term and face many resources limitation the result is that they don't implement social responsible policies and practices losing all advantages that result from them. However, it has no doubt that these policies and practices implementation will contribute positively to improve the organization internal and external environment. They will be a relevant tool in order to reduce waste and consequently increase flexibility and the operations agility, as well as help to improve and obtain high businesses performance levels. In other words, they will be an important tool to develop a lean and green management. To be effective it is necessary the commitment of all employees, in the entire process, and the creation of a close link environment with all stakeholders (clients, suppliers, …) in order that value creation to them focuses in the activities that meet their satisfaction, looking to eliminate all the ways of waste.

It is important to highlight that social responsible concept is not visible only in big organizations. This is a practice that, more and more, is possible to be seen in SMEs.

Indeed, we can conclude that if, at the beginning, social responsible concept was related only with big organizations; nowadays, this has not happened as far as it also exists from SME side an interest to a social responsible behavior. However, we also can conclude that multinationals and big organizations tend to practice social responsibility more than SMEs, mainly due to the costs that they bear.

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