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Ulrich Bremer

Internationalization Strategies of German Universities

HHL Leipzig Graduate School of Management

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Internationalization Strategies of German Universities

With a foreword by Prof. Dr. Stephan Stubner

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Foreword

The internationalization of German universities is stunning: Germany consistently ranks in the top 10 study destinations for international students– German universities *are* internationalized, over 300,000 international students are currently enrolled, and German universities participate in various international projects. Legislators have granted organizational freedom to universities and have incentivized their growth and internationalization; thereby, universities have the opportunity to conduct strategy-based internationalization.

Regarding the role of universities in society and the economy, additional aspects emerge: Our country faces a growing shortage of skilled labor, representing a key barrier to maintaining Germany´s economic well-being. At the same time, over 300,000 international students study at our universities. This situation represents an opportunity for universities, society and economy which can be seized by means of organizational entrepreneurship.

Thus, at the national level, internationalization is a priority for Germany: Its geographical situation, its international trade relations, and its history make international cooperation a political imperative. However, when reflecting on recent global political events (outcomes of the American and German elections, Brexit, etc.), the legitimate question of national interests moves to the forefront. The challenge remains how to motivate a significant share of the international students to join the German workforce upon completion of their studies.

The present thesis contributes to the analysis of internationalization patterns of German universities in the past, delivers facts on internationalization outcomes, ideas for their further trajectory in the future, including the context of digitalization. It employs a mixed method approach integrating both quantitative and qualitative aspects of the topic and presents a typology of approaches to the issue. Thus, the research delivers insights for practitioners in the internationalization process as well as decision makers in administration, regulation, and universities.

Prof. Dr. Stephan Stubner (Dean)
HHL Graduate School of Management

Acknowledgements

The topic ‘Internationalization strategies of German universities’ is pertinent to universities for several reasons: It is a reflection of the international nature of science, it has the potential to enhance quality, it contributes to international understanding, contributes to the solution of global problems – and, particularly in an aging society like Germany, it can deliver an influx of skilled migrants to be educated by German universities.

Reflecting the complex nature of German public research universities, a number of questions emerge: Is the internationalization the result of a strategy-based internationalization process? If so, what are the objectives of key universities? Contrasting privately operated institutions, these institutions act within the framework of complex rules, regulations and motivations. Thus, this research aims at contributing to the application of management theory in the environment of public research universities, and at generating additional theory on the process of internationalization.

The choice of this subject was inspired by the professional experience in contributing to the internationalization of my previous employer – the idea was shaped by my academic advisor, Professor Andreas Pinkwart, who has provided invaluable insights, guidance, motivation and an access to his network. I convey my gratitude to him for the opportunity provided, the trust expressed and the quality of cooperation.

I owe substantial gratitude to all who have contributed information to this thesis, especially to the interviewees, who have taken their precious time despite numerous other obligations, as well as to all participants in this research. I thank the team from the chair, in particular Marcus Haberstroh, for the academic exchange and the feedback given, as well as numerous friends and colleagues who have provided ideas and interest for the topic, particularly Professor Thomas Amling.

The greatest credit, however, goes to my dear wife, Cornelia Bremer, who has provided continuous support, understanding and motivation throughout the entire process. This work is dedicated to her.

Ulrich Bremer

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ARWU	Academic Ranking of World Universities
BAMF	*Bundesamt für Migration und Flüchtlinge* Federal Agency of Migration and Refugees
BMBF	*Bundesministerium für Bildung und Forschung* Federal Ministry of Education and Research
BMI	*Bundesministerium des Innern* Federal Ministry of the Interior
BPB	*Bundeszentrale für politische Bildung* Federal Agency for Political Education
CERI	Centre for Educational Research and Innovation
CHE	Centre for Higher Education
DAAD	*Deutscher Akademischer Austauschdienst* German Academic Exchange Service
DIW	*Deutsches Institut für Wirtschaftsforschung* German Institute for Economic Research
ERASMUS Programme	European Region Action Scheme for the Mobility of University Students
GER	gross enrolment ratio
HFD	*Hochschulforum Digitalisierung* German Forum for Higher Education in the Digital Age
HRK	*Hochschulrektorenkonferenz* University Rectors' Conference
IaH	Internationalization at Home
KPI	Key Performance Indicator: a measurable value indicating a company's effectiveness in achieving key business objectives
KMK	*Kultusministerkonferenz*

	Standing Conference of the Ministers of Education and Cultural Affairs
MBM	management by missions
MBO	management by objectives
MOOC	massive open online course
NPM	new public management
OECD	Organisation for Economic Co-operation and Development
SME	small and medium enterprises
SVR	*Sachverständigenrat zur Begutachtung der wirtschaftlichern Entwicklung* Council of Experts on the Assessment of Economic Development
THE	Times Higher Education World University Rankings

Abstract

Internationalization of German public universities is a topic of significant relevance for German universities themselves, but also for the country's economy and society. German society faces a huge demographic challenge, since it is expected that up to five million skilled employees will be needed by 2030 to keep the country's baseline economy up and running. Consequently, politics have created favourable conditions to attract international students, for instance, low tuition fees or none at all, work permits during studies, and attractive consecutive work options. All this is accompanied by a strong German economy providing for suitable jobs. Besides the overall benefits of an international orientation (such as international visibility, diversity in student body and faculty, but also knowledge spillovers), German universities are largely incentivized on growing student numbers. Moreover, other studies suggest that attracting skilled migrants to study in Germany and to remain upon graduation is likely to produce positive results in terms of integration and employability.

Defining the growth of international student ratio and growth of international scientific staff ratio as outcome variables, this study examines the internationalization behaviour of German universities. In so doing, the focal point of this thesis is to contribute new aspects to the scientific discussion on targets for universities in the field of internationalization, in relation to the needs of society and economy.

To this end, the work at hand is subdivided into three parts: The first empirical part examines four significant factors of impact: specialization, internationality of environment, size, and international reference within the mission statement. This is done by means of quantitative methods centred round ten parameters that are surmised as potential traits of internationalization (e.g., existence of an internationalization strategy in 2012; internationally exposed rector; number of exchange agreements). In this context, the key results of this thesis show that: (a) specialization correlates positively with the growth in ratio of international students; (b) internationality of the environment correlates negatively to the growth in ratio of international students; (c) size of university correlates positively with the growth in ratio of international students, and (d) the international reference within the mission statement correlates positively with the growth in ratio of international scientific staff.

The second, qualitative part applies the Leipzig leadership model, as an innovative school of leadership that considers the contemporary needs for permanent change in the process of internationalization, and derives suitable applications for each dimension of the model within the environment of higher education. In line with the Leipzig leadership model's central conviction that organizational purpose is the fulcrum of strategic management, it proposes three types of uniquely purpose-driven universities: 'global leaders', 'status quo optimizers' and 'nichers'.

In the third part, the results of this study are transferred to today's university practices and also to further academic research, pinpointing needs for structural change in favour of internationalization and its interconnected goals, with regard to society, economy and higher education policy.

1 Introduction

1.1 Research Question

1.1.1 Globalization and the need for internationalization in Germany

Globalization has been a buzzword for many years: a Google search delivers 44.4 million suggestions in 0.43 seconds, and a plethora of papers have been published on the topic. But do universities need to internationalize? Knowledge and its production – the business of universities – does not stop at borders, it has always transcended them. Criticism of internationalization comes from different perspectives: a number of authors have argued that universities have always been international institutions (Altbach, 2007, p. 24) and that, relative to their size, international activities were historically broader than today. Altbach and Teichler (2001) pointed out that in the Middle Ages the international authority of the Roman Catholic Church served as a supranational institution and Latin as the *lingua franca* of academia. It was growing nationalism that led universities to teach in national languages and reduce international activities (p. 6). Today, in more than 70% of universities in the world, as in other fields of human endeavour, English is the preferred language of communication and teaching (Maringe, 2010, p. 17-34).

Beyond this, international influence is omnipresent. Higher education is increasingly governed by supranational bodies, such as the European Union, and international organizations negotiate regulations and provide the framework for higher education. German universities already host more than 300,000 international students and employ more than 30,000 non-German professors and researchers. Germany saw an unprecedented influx of refugees and immigrants in 2015, whilst at the same time German society faces a dramatic demographic challenge: As the low birth-rate that has been evidenced for more than 20 years can now be traced in the job market, and the economy faces an annual 3% decline of youngsters entering

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the job market, experts estimate a shortage of qualified employees of two to four million in 2020 and five million for 2025 and 2030 (Suder & Killius, 2011, pp. 12-13).

As is shown in this research, phenomena occur, they happen – and individuals and organizations rarely have the chance to really change them. Globalization – to be defined and delimited in the next section – seems to be such a phenomenon. Organizations, such as universities, thus have the task of adjusting to new realities and positioning themselves towards their stakeholders, such as students, employees, the economy, and the domestic and perhaps even global society – or actively using the phenomenon to improve their position in the education market.

These processes are accompanied by a technological change that has the capacity to transform entire industries – as is already happening in fields such as publishing, the airline industry, banking, and providers of technology themselves. Which scenarios are to be expected for German higher education? It is apparent that having to tackle the issue of globalization and internationalization is inevitable. Given the relevance and seriousness of the demographic situation for Germany (Federal Agency for Political Education [*Bundeszentrale für politische Bildung*] (BPB), 2011) and the capacity of universities to contribute to solutions to this problem by facilitating and shaping skilled immigration (Alichniewicz & Geis, 2013, pp. 14-15), this paper focuses on the physical mobility of students and faculty.

It was the goal of this research to examine the impact of management practices, especially strategic management, on the internationalization of German public research universities. Theories of strategic management in general, strategic management of internationalization, and strategic management of university internationalization are presented and discussed in the context of German higher education. Based on existing theory, this research has developed hypotheses and tested them against quantitative data.

1.1.2 What is internationalization and how can it be measured and described?

Kehm and Teichler (2007) have noted that research on the internationalization of higher education is complex, often normative, and that its multidimensionality creates a degree of 'fuzziness' (p. 262). Van der Wende (2001) has identified particular relevance in student mobility, integral strategies including curriculum and staff development, quality assurance, the impact of technology, an enhanced link between international research and education, as well as the establishment of international consortia (p. 250). Given the business background of this research, the level of analysis was the single university; overall policies at the national or supranational level are described as factors of influence.

The reference points of internationalization of universities originate in their missions: research, teaching, and knowledge transfer. Combined with their multiple stakeholders, functions, results and places of delivery, fields of internationalization can be identified. Brandenburg and Federkeil (2007) have divided the issue into three major parts: overall aspects, research, and teaching and learning. The overall aspects encompass principles of leadership, inherent properties of professors and junior researchers, scientific staff resources and international networks. Research is described in terms of input and output, input consisting of the internationality of professors, resources and international research projects, whereas output is defined as research results and the education of junior researchers. Teaching and learning's input is defined as the internationality of teaching staff, internationality of students, internationality of service and administration, international networks in teaching and learning, resources, study programmes and curricula. Output is measured by graduates and international reputation (pp. 13-36).

Given that the research focus of this paper was to evaluate factors of impact on the physical, incoming mobility of researchers and students, these two aspects are defined as dependent variables; an overview of relevant independent variables cited in the above studies is presented in the following Table 1 (see page 5). This perspective reflects the demographic situation within Germany, as well as recent developments of a significant influx of immigrants into Germany.

The intuitive approach to the measurement of internationalization is probably based on student passports, thus measuring the number of non-German students at German universities. However, the target dimension was internationally mobile students. Relying exclusively on the nationality of the students would:

- exclude students having conducted their entire education in Germany, if they do not hold a German passport
- include students having conducted their entire education abroad and only returning for university education in Germany, if they hold a German passport

Given that the research question was to measure mobility, this approach was not seen to be appropriate. The next approach to the measurement of internationally mobile students takes into account mobility, the decreased relevance of nationality and the increased impact of education, using the type of entrance qualification to university as a mode of delimitation. German statistics differentiate between *Bildungsinländer*, educational residents who hold a domestic university entry qualification, and *Bildungsausländer*, educational foreigners who hold an international, non-domestic university entry qualification (Gérard, 2012, pp. 729-731). This system approach would include German nationals with international qualifications, such as International Baccalaureates and American High School Diplomas, as internationals. The next challenge was represented by the statistical mapping of 'mobile students'. Should the study consider a minimum period of stay in another country, so that exchange students studying a limited time abroad are either in- or excluded in the pool of international students?

There are a number of shortcomings within statistics in the field of university internationalization:

1. Differentiation by target degree is not possible: German universities – especially after the Bologna reforms – offer many different degrees, so that a combined search for the level of education, single university and origin of student is precluded.
2. Duration of intended stay is not recorded: Reliable sources of statistics do not allow differentiation according to the intended duration of stay in Germany. It can be assumed that a student at Master's level having the intention to settle in Germany applies different criteria and shows different properties than do exchange students.
3. Doctoral students: No reliable data are available on doctoral students; the main reason is that these students are recorded in different ways in different universities. In some universities the differentiation runs along the lines of employment; students with a contract with the university are considered academic staff, and number of doctoral students are not recorded at all.

Despite the relevance of internationalization, literature criticizes the quality of available statistics (Teichler, 2007, pp. 12-13). Given that the goal of this paper was to compare German research universities with each other and to measure the impact of strategy, the focus was specifically on the difference between universities, their ratios of international students and academic staff, rather than on absolute values. Consequently, a pragmatic view on statistics (accepting inevitable shortcomings) had to suffice; the concept of *Bildungsausländer* was employed, including exchange students. As this approach was applied to all universities in the study's survey, the results remain comparable.

Table 1 on the following pages presents an overview of indicators measuring internationalization and their grounding in theory, as well as the relevance for this research, and how the respective indicator was used in this research.

Table 1 Aspects and Measurement of Internationalization

Aspects of University Internationalization	Measurement/KPI	Relevance for this Research	
Leadership structure	Relevance of internationalization to the university expressed in strategy and organizational structure	Hypotheses on impact of mission statements and organizational structure	In general: Chandler (1972, pp. 383-386), Kirchgeorg, Meynhardt, Pinkwart, Suchanek, and Zülch (2016) For universities: Chan (2004, p. 40), Ayoubi and Massoud (2007), Lockwood (1985a), Morrill (2010)
Internationality of academic staff	Ratio of non-German academic staff	Key variable to model, to be used as dependent and independent variable	Bedenlier and Zawacki-Richter (2015), Kim and Locke (2010)
International networks	Number of exchange agreements worldwide	Number of exchange agreements to be used as independent variable in the model to be developed	In general: Axelsson and Easton (1992, p. 12), Granovetter (1973, pp. 1373-1376), Benkler (2006) For universities: De Wit (2010, p. 4)
Research	International citations of university professors, Leiden Ranking index	Placement in Leiden Ranking to be used as independent variable in the model	Turner (1986, pp. 83-86), Roche and Smith (1978), Merton (1968)
International students	Ratio of international students to total number of students	Key variable to model, to be used as dependent and independent variable	KPI: Brandenburg and Federkeil (2007, pp. 33-35)
International reputation	Top 100 positions in international rankings	Positioning in international rankings to be used as independent variable in the model	Hazelkorn (2015), Kehm and Stensaker (2009), Van der Wende (2008), Altbach, (2013)
International graduates	International graduates as absolute number and success rate	Statistics not available, therefore not used in this research	KPI: Brandenburg and Federkeil (2007, pp. 33-35)

Aspects of University Internationalization	Measurement/KPI	Relevance for this Research	
International curricula	Ratio of courses offered in foreign languages	Statistics not available, therefore not used in this research	Concept: Van der Wende (1996, pp. 186-195) KPI: Brandenburg and Federkeil (2007, pp. 33-35)
Branch campuses	Number of students enrolled in branch campuses	Not included in this research due to focus on physical mobility into Germany	Foskett (2010), Guri-Rosenblit, Sebkova, and Teichler (2007, p. 379), Becker (2009), Wilkins and Huisman (2012)
Internationalization by means of new technology	So far no KPIs available in the literature	Usage of MOOCs in internationalization is evaluated qualitatively	Strategic management of technology: Ansoff (1987a) Mode of entry: Erramilli (1990) For universities: Pinkwart and Czinkota (2012), Bates (1999)
International knowledge transfer	Participation in international projects in knowledge transfer (UN, EU, World Bank, etc.)	Not included in this research due to focus on physical mobility into Germany	New generation of university: Pinkwart (2012b)

1.1.3 Why? – Motivations to internationalize

The motivation underlying internationalization can be considered the purpose of the venture, in the sense of the Leipzig leadership model, which is discussed later in this research. These motivations – not mutually exclusive, but rather cumulative – are likely to have a strong impact on the internationalization process of a university. At this stage, key consequences of these approaches are presented.

Motivations in the state-funded system were evaluated at two levels: The first describes the motivations of owners, generally public entities, represented by ministries in charge of higher education. (Legally, a number of public research universities are under the ownership of public foundations. Given the fact that their funding is regulated by the same public entities, no differentiation has been made in this research.) The second level describes the universities and their organizational interest and is further elaborated upon in this research. In order to capture the motivations of ministries with regard to internationalization, Higher Education Acts of the 16 states are analysed in section 2.4 on '*Framework Conditions for the Internationalization of German Universities*'.

The Federal Ministry of Education and Research [*Bundesministerium für Bildung und Forschung*] (BMBF) (2016) nominates the following aspects for its engagement in internationalization: strengthening of scientific excellence by attracting international researchers, contributing to the normative power of German companies through worldwide networking, creating partnerships with emerging countries, solving global problems and contributing to the demographic challenge in Germany (p. 5; p. 31).

As is presented in section 2.4.1 of this research, state governments vary according to their situation: there is a general agreement on the central position of universities in shaping the knowledge economy and the resulting changed requirements to participate in it. States that are particularly affected by the demographic shift (states in the former East Germany, excluding Berlin) nominate the contribution to the solution of the demographic challenge as a key motivation to engage in internationalization of universities.

Governments at federal and state level are motivated to strengthen their respective economies. A study conducted by Prognos on behalf of DAAD (*Deutscher Akademischer Austauschdienst* / German Academic Exchange Service), as cited in Münch and Hoch (2013), shows multiple effects of international students on the economy of the host country: cost to the host country for the provision of study places and cost for scholarships are juxtaposed with income effects through student consumption during studies, and the multiple effects of employment during and after studies. The largest contribution of international students to the wealth of the host country is generated by post-study employment of students who stay in the host country. Thus, the stated ratio represents the key variable of the model. Overall, the model indicates that the cost of international students is not compensated in the short run, the benefits will occur in the long term (pp. 61-89). Governments may also be motivated to employ scholarship programmes to educate decision-makers who might reciprocate the received treatment with corresponding benevolence in their future position (Knight & De Wit, 1995, p. 10).

Pinkwart and Czinkota (2012) have presented four approaches to cross-border post-secondary education: Firstly, the **skilled-migration approach** aims at integrating international students into the national economy. In terms of this study, this approach had to be placed in the context of demographic change in Germany. Is it the task of public research universities to provide skilled migrants to the economy? If so, employability outside the academic community would become a key task for universities. Apart from serving society, universities act as employers themselves and recruit international talents to support their missions, Pinkwart (2012b) has emphasized the active role of American universities in this field (p. 8).

Secondly, the **revenue-generating approach** encompasses the generation of fee income from international students, aspects that were not explored any further in this research due to the absence of study fees for German public research universities. The approach asks a legitimate question about underlying incentives. Although no study fees are charged by German public research universities, the funding system for German universities does create incentives to enrol additional students. Thus, at the level of the single university, there is an incentive to recruit international students in order to meet quantitative goals.

The German system of funding public universities generally refers to student numbers. The system of target agreements between ministries of education and universities [*Ziel- und Leistungsvereinbarungen*] are described in the section on governance structures in the German system (section 2.4.1.). In der Smitten and Jaeger (2012) have shown that target agreements often include stipulations on university budgets based on universities reaching their targets (pp. 39-42). The Higher Education Pact II grants universities additional funds under the condition that they provide additional study places, or, in the case of East Germany, do not reduce capacity – no differentiation is made between domestic and international students (Federal Government and State Governments of the Federal Republic of Germany [*Bundesregierung der Bundesrepublik Deutschland*], 2014, January 9, § 1-2).

The strategic University Development Plan of the Saxon State Ministry for Higher Education, Research and the Arts [*Sächsisches Staatsministerium für Wissenschaft und Kunst*] (2016) can be taken as an example: universities need to adjust to expected budget restraints upon expiry of federal funding through the Higher Education

Pact 2020 (pp. 12-14). A similar motivation can be described as 'managerialism in higher education', encompassing the propensity of the organizations to maintain their size or to grow (Maringe, 2012, p. 26). This aspect is of particular relevance to universities in East Germany (the 'new' states, excluding Berlin): the Centre for Higher Education (CHE) – on behalf of both ministries – has outlined the expected consequences of demographic shift for Saxony (Berthold, Hener, & Von Stuckrad, 2008), and Thuringia (Berthold & Leichsenring, 2009), the key factor being the sharp decline in age cohorts due to lower birth rate and internal migration to Western states. These documents of the following state governments nominate universities as key actors in responding to the demographic challenge (Saxon State Ministry for Higher Education, Research and the Arts, 2016, pp. 8-9; Thuringia State Ministry for Education, Science and Culture, 2015, pp. 29-30; Saxony-Anhalt State Ministry for Economy and Science, 2015, July 2, pp. 11-12).

The Higher Education Act of Saxony allows universities to charge fees to non-EU students if they provide scholarship programmes for these groups of students – funds generated benefit the university directly (Saxon State Government [*Landesregierung Sachsen*], 2013, §12 III). The legislator in Baden-Württemberg pursues a similar path: international students generally pay €1,500 per semester, €300 remain with the universities in order to improve study conditions for this group. This charge is accompanied by a few exemptions (for example, for exchange students and students from poor countries) and scholarships (Baden-Württemberg State Ministry of Science, Research and Art [*Ministerium für Wissenschaft, Forschung und Kunst des Landes Baden-Württemberg*], 2017).

The German constitution generally forbids the cooperation of federal government and states. With effect of 2015, this has been modified in the sense that the federal government is allowed to cooperate with states in cases of supra-regional relevance, with any support for universities needing to be approved by all states (Federal Ministry of Education and Research [*Bundesministerium für Bildung und Forschung*] (BMBF), 2014). University funding consists of basic funding [*Grundmittel*] representing funds granted by the states in general, on a regular basis, in order to cover the universities' basic operations in teaching and research (Dohmen & Krempkow, 2014, pp. 15-17). These funds are supplemented by third-party funding that is raised in addition to the basic university budget, in order to foster research or the development of junior researchers (German Federal Statistical Office [*Statistisches Bundesamt* (Destatis)], 2017a). In 2015, German universities (all types, including clinics) posted a total income and expenditure of €44.9 billion, raised as administrative income of €16 billion, basic funding of €22.1 billion and third-party funding of €6.7 billion (University Rectors' Conference [*Hochschulrektorenkonferenz*] (HRK), 2015, p. 2).

According to an official estimate for the year 2025, student numbers are expected to remain at a high level and decrease only moderately by 7% compared to the numbers of 2014 (Standing Conference of the Ministers of Education and Cultural Affairs [*Kultusministerkonferenz*] (KMK), 2014, pp. 9-10). The University Rectors' Conference (HRK) points to the aspect of university funding: the Higher Education Pact expires in 2020, final funding [*Auslauffinanzierung*] continues until 2023 (HRK, 2017a, pp. 4-5). Pinkwart's (2014b) suggestions to provide sustainable and reliable university funding (pp. 36-37) are discussed in the '*Conclusion*' (see page 247). Thus, it can be remarked that German universities – although most of them do not charge fees directly to students – do have financial incentives to recruit international students.

The third **approach of mutual understanding** focuses on the physical mobility of international students and faculty. This aspect was one key focus of this research. It encompasses the question of what to teach to international and domestic students. Is it the task of the university to educate 'global citizens'? Is it the task of the university to promote values like democracy, diversity, liberal society and protection of the environment? These questions strongly relate to the level of purpose of the university in general, and to the process of internationalization. Given the business focus of this research, these aspects are not discussed further. Pinkwart (2012a) has presented an additional application for this aspect: good leadership encompasses dealing with intercultural and religious barriers (pp. 59-60); the inclusion of students and researchers from different backgrounds contributes to the solution of this aspect.

Pinkwart (2007) has placed these motivations in a broader perspective: the central purpose is to create a prosperous society, delivering people competitive jobs, delivering solution approaches for international conflicts, contributing to – economically feasible – environmental protection, and to reforms of social security in Germany (p. 258).

The fourth **building organizational capacity-approach** aims at building a country's capacity (Pinkwart & Czinkota, 2012, pp. 255-256), defined as 'the administrative foundation of an institution, which is essential for establishing and sustaining initiatives intended to realize its vision' (Toma, 2010, p. 1). Consequently, capacity in the broad sense encompasses resources helpful to serve the vision of the institution. Applied to the context of German research universities, this can be interpreted as the education of future researchers in the quality and quantity required; international networks to support the vision, as well as management resources to lead the process. Internationalization with the intention to build organizational capacity thus encompasses the enhancement of these qualities. This aspect encompasses challenges to German universities, which recruit the vast majority of their students from within their environment: those of regional mobility.

Middendorff, Apolinarski, Poskowsky, Kandulla and Netz (2013) have shown that in 2012 only 35% of German students left the state in which they had earned their university entrance qualification, North Rhine-Westphalia and Bavaria delivered 21% and 23%, respectively (pp. 63-64). From the perspective of universities, Kandulla (2014) has shown, for the universities in North Rhine-Westphalia, that 80% of the students of research universities did not leave the state where they had obtained their university entry qualification (pp. 11-12). Consequently, under the provision that universities want to maintain their size and level of quality, it would appear to be essential to recruit students from other regions.

Relevant authors have discussed the question as to whether internationalization should be decided by universities, or if there is an 'imperative to internationalize' (Altbach, 2013, pp. 1-10). Principles of funding of relevant organizations may create the requirement for universities to engage in international networks: The Horizon 2020 represents a funding programme established by the European Union in order to foster research in the European research arena by funding research, technological development and innovation – through contributing to the overall goal of enhancing economic growth (European Commission, 2017). The total budget of Horizon 2020 amounts to €80 billion (European Commission, 2013). Funding generally requires the collaboration of a minimum of three partners from three different EU countries (European Commission, 2017). The European Research Council (2017) – another relevant funding institution for universities – explicitly states that increasing the international exposure of researchers is central to their selection mechanisms.

The German Academic Exchange Service [*Deutscher Akademischer Austauschdienst*] (DAAD) represents another pertinent funding organization, which is strongly connected to the concept of internationalization – hence, funding from this organization generally requires engagement in internationalization (DAAD, 2017b).

One of the key global university rankings – the Times Higher Education World University Rankings (THE) – weighs the 'international outlook' by 7.5%. Under the assumption that rankings matter to universities, this imparts an additional incentive to internationalize (Times Higher Education World University Rankings, 2017).

1.1.4 Management theory and the specifics of German public research universities

There is one major assumption to be made: German universities are in the position of shaping internationalization by means of their strategies and actions having consequential impact on internationalization outcome. A second assumption is that they have goals that they aspire to pursue.

The relationship between management theory and higher education is complex. Although it is taught at universities, it is not undisputed as to whether it can and should be applied to higher education itself. This section starts with defining higher education in terms of management theory, including the shortcomings of management theory. Based on this description, the prevailing criticism of the concept is presented, especially regarding non-applicability and ethical issues.

Discussion is presented as to how the concept of markets and competition can be applied to the internationalization of higher education in Germany. In the context of this research, there are two types of relationships that need to be taken into account: the interaction between universities and their financiers, and that between the university and potential students and scientific staff. The former is described in the section on '*Legal framework of German research universities*' (see page 69, section 2.4.1.); the latter is discussed in the following section on '*Information economics in the context of higher education*' (see page 19, section 1.1.5.).

Organizational theory presents doubts as to whether management theory is applicable to universities, due to the fundamental differences between universities and other organizations, and whether they can be considered to be organizations in the sense that they pursue organizational goals. Unlike the firm, the university is not an integrated organization, in which leaders have hierarchical controls to ensure the fulfilment of targets: universities are compared to guilds, in the sense that the individual professor is an employee and the group of professors collectively forms a major element of government (Lockwood, 1985b, pp. 40-41). Universities are generally managed collegiately, reducing the authority of leaders; professors enjoy a high level of freedom (Birnbaum, 1992; Bogumil, 2013). Once appointed, professors in German universities are generally established in the status of life-long public servant, enjoying complete job security. Thus, everyone has a clear incentive not to violate other chair holders' interests, and expects the same in return. This structure in Germany has been described as 'academic oligarchy' (Clark, 1986, p. 140). The highly specialist knowledge of disciplines required makes professional leadership even more difficult in the context of German research universities. Kohmann (2012) has added that professors' loyalty is generally directed more towards the academic community than to their university, imposing the additional challenge on leaders to encourage professors to engage in institutional development (pp. 108-110).

Consequently, decision-making is a protracted process and changes are only possible where everyone gains, or at least no one significantly loses. If no substantial change is required, this system may yield acceptable results. In rapidly changing environments, this structure is likely to preserve the *status quo* at the expense of untapped opportunities (Schimank, 2005, pp. 363-364).

Additionally, the general mission of universities seems incompatible with simple structures of management: universities all over the world serve the tripartite goals of teaching, research and service. However, these three imply entirely different structures: whereas teaching requires coordination between interrelated subjects and topics, research largely relies on the effort of individual scholars, and service quality is enhanced by central coordination (Birnbaum, 1992, p. 12). Keller (1983) has added that these objectives produce diverging impulses and plurality, thus generally inhibiting a unified strategic approach (pp. 28-29). Krücken and Meier (2006) and other authors do consider universities to be organizational actors (pp. 241-243); this view has also been supported for within the German context (Bogumil, 2013; Hahn, 2005; Hanft, 2000).

Notable authors like Mintzberg and Rose, Cohen and March, and Birnbaum have illustrated these issues impressively. Mintzberg and Rose (2003) have provided vivid examples of organizational routines in universities: with research largely under the control of the individual professor, a university of 1,000 professors may have 1,000 research and teaching strategies, whilst hiring of new professors is decided collectively. Consequently, aligned action is a challenging activity in academia (pp. 270-271). Cohen & March (1974) have called universities 'organized anarchies' due to their lack of a coherent structure and strategic use of technology, which renders a fluid participation; the investment of organizations' members varies from one to another and makes standard theory inapplicable (pp. 2-4). Birnbaum (1992) has drawn the conclusion that simple management, although suggested by some authors, would not be helpful; he has suggested that university management needs to be redefined, including the management of conflicting objectives in complex organizations (p. 12).

This research has followed the strand of literature that assumes more complex utility functions of academics and academic managers and thus the applicability of management theory to higher education. Birnbaum (1992) has argued that the utility functions of university members are more complex, including aspects like personal fulfilment, reputation and the realization of personal goals (pp. 11-12). Winston (1999) has asserted that business methods are a legitimate simplification, which apply principles derived from for-profit operations, but which yield good results in terms of description (p. 14).

There is a substantial body of literature that considers higher education a public good. The theory of public good encompasses two dimensions: additional customers do not cause additional costs (zero incremental cost) and they cannot be excluded from consumption (Samuelson, 1954). Stiglitz (1999) has argued that knowledge shared by more people does not harm the people already holding that knowledge, and that new ideas spread and thus exclusion of consumption is largely not possible (pp. 308-310). The topic of this research is the education of international students or the employment of international scientific staff – both require the use of scarce resources, such as teaching by qualified personnel in the case of educating students, and financial resources and supervision in the case of employment of international scientific staff.

The German system of funding of public research universities generally refers to the ratio between students and university personnel, codified in the Capacity Act [*Kapazitätsverordnung*] of each state (Berthold et al., 2008, p. 20), for example, North Rhine-Westphalia (North Rhine-Westphalia Ministry of the Interior and Municipality [*Ministerium für Inneres und Kommunales des Landes Nordrhein-Westfalen*], 2017, § 1). Thus, the admission of additional students does reduce the quality of the service (rivalry of consumption), and the enrolment of additional students can be controlled (excludability). Herrmann (2015, December 9) has elucidated the relevance of support for international students, while Herbst (2007) has observed the labour-intensiveness of research universities – and a decline in quality if labour is reduced (p. 27). The Council of Science and Humanities emphasizes that the faculty/student ratio is essential to quality in higher education (German Council of Science and Humanities [*Wissenschaftsrat*], 2013, p. 9).

The Federal Constitutional Court [*Bundesverfassungsgericht*] (1972, May 3) has ruled that it is not a violation of the German Constitution to restrict admission to universities if certain criteria are fulfilled with regard to capacity management and selection of students. Consequently, this research considers higher education a private good.

1.1.5 Information economics in the context of higher education

According to the market model of business theory, markets deliver good results under the conditions of absence of monopolies and oligopolies, as well as no divergence in private, social costs and benefits. There is general consensus that both conditions are not met in higher education (Leslie & Johnson, 1974, p. 11). The limitations of market functions are largely due to issues of information economics: the idea that markets create efficient outcomes is based on the assumption of perfect information.

The approach of information economics challenges and lifts this limiting assumption and thus emphasizes the value of information in market transactions. Two major aspects are considered. One aspect is hidden information, described as **asymmetric information**: the uninformed party does not have all the information necessary to make a decision about the transaction. Literature differentiates between different types of qualities: search qualities can be detected by research; experience qualities are revealed while using the product, and credence qualities are hard to judge even after purchase (Darby & Karni, 1973, p. 69). Given the complexity of higher education on many levels (quality of different courses of a university; properties of the university environment; properties of students in terms of academic capacity) (Monopolies Commission [*Monopolkommission*], 2000, p. 58), information economics do play a pivotal role in this field. This applies to the decision-making process of students when choosing their university, in which students face a clear disadvantage in terms of information, and thus regulation is introduced as a means of student protection (Mause, 2007, pp. 61-117). Similar aspects come into play in the hiring decision of employers when considering graduates from different universities (Spence, 1973) – thus having a great impact on the perceived value of the degree and the selection of partner universities in the international arena.

The second aspect is moral hazard, in which one party – once accepted into a long-term contractual relationship – shows behaviour that harms the other party. Examples in the field of higher education could be: a university, once having received quality seals, then reduces quality afterwards in order to enhance revenue, resulting in students overpaying the university. Consequently, the uninformed party is best off presuming the worst possible behaviour of their counterpart, as they would otherwise overpay; on the other side, this behaviour makes the 'better' providers – offering higher quality at higher cost – leave the market, so that only the 'bad' parties remain in the market; this process is referred to as **adverse selection**. Due to these aspects of information economics, students may be influenced to make flawed decisions. The shortcomings of information are the basis for many government actions, accreditation and rankings (Brown, 2011, pp. 9-10).

Business theory has developed and examined two main tactics to tackle these problems. The concept of screening aims to reduce the problems of adverse selection and asymmetric information by providing more relevant information to the parties in order for them to make better decisions (Stiglitz, 1975, p. 283). Signalling is defined as the informed party sending out observable information about hidden characteristics (Brown, 2011, p. 5). In higher education, the following types of signals are discussed: price, the assumption that a high price for the course correlates with high quality; reputation in the market, captured by feedback from existing students; non-profit operation, assuming that institutions not being driven by profit focus on higher quality of education and external validation, the letters represented by accreditations and rankings are used to deal with the problem of information as symmetry, and in order to enable students to make good decisions about their choice of university (Mause, 2007, pp. 94-105).

Accreditation describes the process of a competent third party confirming the quality of a study programme based on the self-assessment of universities (Standing Conference of the Ministers of Education and Cultural Affairs [*Kultusministerkonferenz*] (KMK), 1998, December 3). Rankings define criteria and rank universities accordingly, creating league tables. Based on the weighting of the criteria, a composite indicator is calculated in order to assess the quality of the entire institution (Federkeil, 2013, pp. 36-37).

Despite criticism on several levels (Kehm, 2013, pp. 22-23; Marginson & Van der Wende, 2006, p. 308), the high impact of rankings is undisputed, as they reduce a plethora of information and a highly complex decision to a manageable level (Wildavsky, 2010, pp. 134-140). Rankings are considered to have a particular relevance in internationalization as they are considered the 'currency' (Neubauer, 2014, p. 35).

1.1.6 Research question and derivation of first hypotheses

This research derives five categories that are expected to have a major impact on internationalization outcome: strategy, institutionalization of measures to internationalize, leadership, environment, and external validation. As is shown in the literature review, no other study has quantitatively evaluated the impact of these aspects on the internationalization behaviour of German public research universities. Thus, the research question is: How do these factors influence the internationalization outcome (measured by the ratio of international students and international faculty) of German universities? All criteria were derived from literature and were operationalized by indicators.

***Impact of strategy*:** Strategy models generally assume a significant impact of environment on organizational performance: it is the task of strategy to shape the organization in such a way that developments, especially changes in the environment, can be used as opportunities for the organization itself. Keller (1983) has considered strategy as the process of rediscovery and re-evaluation of ends – and has proclaimed that universities are required to do so (p. 76; pp. 117-188). Recent literature has considered strategy a necessity for preparing universities to cope with changes in the technological, economic and political environments (Martinez & Wolverton, 2009, pp. 8-9). With regard to strategy, the following criteria were evaluated for their impact on the internationalization outcome: existence of an internationalization strategy; international reference of mission statements; degree of specialization, and size of university.

Impact of institutionalization: Internationalization historically relies largely on personal interaction between individual faculty members (Pinkwart & Czinkota, 2012, p. 257). In order to align the university according to a strategy, institutionalization by means of bilateral or multilateral cooperation is considered helpful (Hahn, 2004, pp. 336-337). This research has evaluated the impact of international institutional partnerships and the impact of international faculty.

***Impact of environment*:** The environment encompasses the location, the physical environment and its properties, as well as the legal framework. It is evaluated in section 2.4 on '*Framework Conditions*' in the next chapter, as to whether Higher Education Acts in different German states differ substantially. Properties of the environment, in terms of attractiveness to students and international scientific staff, as well as the internationality of the environment, are included in the quantitative evaluation.

***Impact of leaders*:** The upper echelon theory presented in the next chapter assumes that leaders have a significant impact on organizational decisions, actions and performance (Hambrick & Mason, 1984; Hambrick, 2007). Pinkwart and Proksch (2013) showed that international exposure in leaders has an impact on the internationalization behaviour of organizations (p. 47). This research has evaluated the relationship between internationality of leaders and internationalization outcome.

***Impact of external validation*:** As is shown in the section on student and researchers' decision-making process, their decisions largely reflect the perceived quality of universities, with rankings considered to have a particular relevance as 'currency' in internationalization (Neubauer, 2014, p. 35). Thus, it was expected that these indicators have a significant impact on the internationalization outcome.

Figure 1, on the following page, presents the expected factors of impact within the categories of this research.

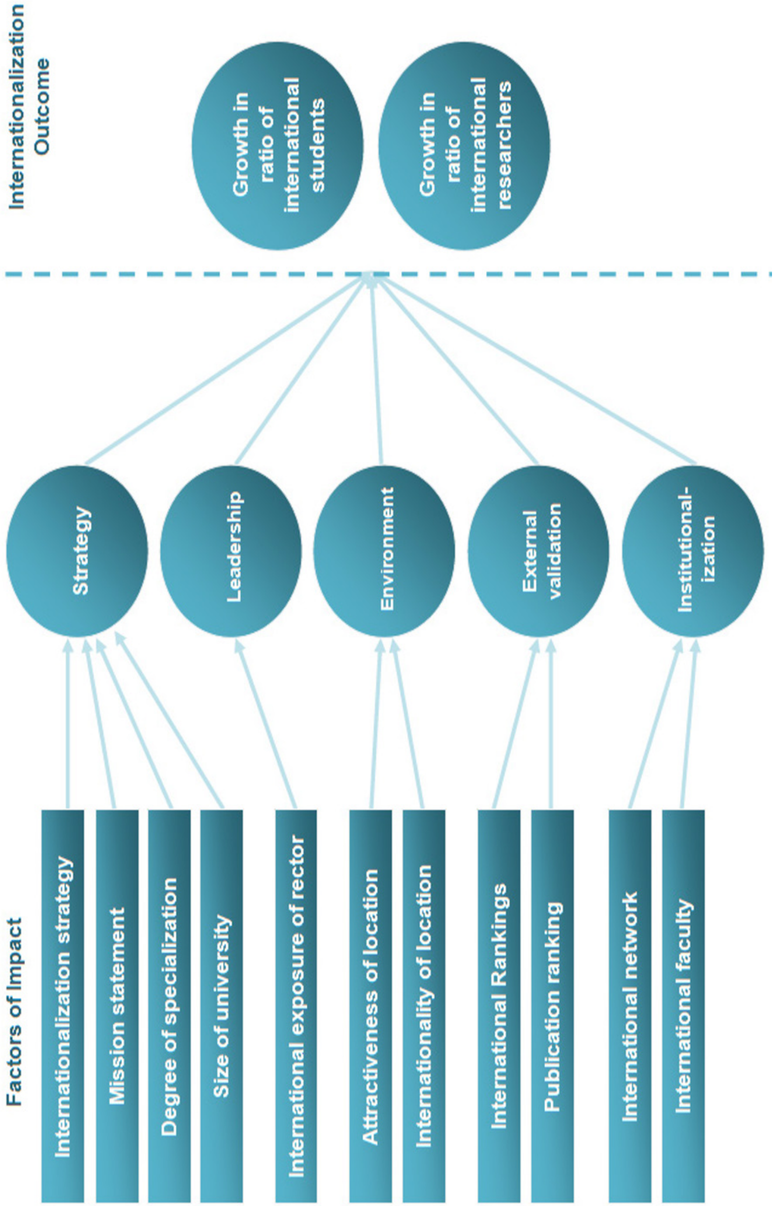

Fig. 1 Expected interdependencies (author's own).

1.2 Theoretical Framework of this Research

1.2.1 Definitions, terms and delimitation

The term **'university'** has been defined in many different ways, depending on the approach. One of the most famous definitions was given by Von Humboldt (2010), referring to universities as 'scientific institutions'. He gives several conditions for a university, clearly differentiated from schools or vocational institutions; according to Von Humboldt, a university must have unity of research and teaching, freedom from government (i.e., from interests other than pure science), focus on science as a purpose in itself (not as being useful), an idealistic attitude towards science from professors and students, and a governance oriented towards science, not towards personal interests.

By contrast, in most countries, the term 'university' is not legally protected; across the world, 100,000 institutions call themselves universities (Scott, 1998, p. 918). In order to find an operational definition for this paper, legal governmental standards are referred to, therefore: for this paper, a university is defined as an institution of higher education, and a state-accredited (thus able to grant recognized degrees) institution of the tertiary higher education sector of its home country. In Germany, higher education is under the authority of the states, the federal law refers to the state law. Therefore, different laws apply to the universities in the 16 German states. In order to capture the general picture, the prevalent trends in legislation are presented.

In Germany, there is a further differentiation within the universities: a *Universität* has an academic mission to educate professors and academically trained graduates, whereas *Fachhochschulen*, translated as 'Universities of Applied Science' are to educate students to work in jobs outside universities and academia. These missions are translated into recruitment criteria for professors: a university in the narrow sense may generally only recruit professors who are habilitated after their doctorate; a professor at a university of applied science generally has to show practical experience plus a doctorate.

This paper focuses on state-run research universities (*Universitäten*), which are open to the general global public (under the condition that they meet the entry requirements, which may be adjusted to comply with the limited number of available study places). Consequently, universities run by the German military or by churches are excluded, as they do not fulfil this criterion.

Rue and Holland (1989) have defined strategic management as the process by which top management determines the long-run direction and performance of the organization by ensuring that capital formulation, proper implementation and continuous evaluation of the strategy takes place (p. 3). Hungenberg (2014) has presented criteria for strategic decisions as creating long-term potential for success;

originating from an overall perspective; determining the fundamental positioning of an organization in the market in order to capture competitive advantages, and pursuing long-term success of the organization (pp. 4-6).

Porter (2002) has emphasized the aspect of making fundamental decisions to distinguish the organization from competitors; consequently, strategy involves deliberately disregarding other options and focusing on the chosen ones (pp. 64-69). Similarly, Thompson and Strickland (1999) have labelled this 'array of choices the game plan' of the organization (pp. 2-3), while Rue and Holland (1989) have emphasized the pursuit of the organization's goals in a given environment (p. 3). All these definitions – although seldom explicitly stated – assume that a strategy exists as a written document. This view delivers the theoretical grounding for Part 1 of the empirical work: Do universities have a codified strategy?

The terms **'globalization'** and **'internationalization'** are sometimes used as synonyms, the former being used more frequently for the simple reason of sounding more modern (Scott, 2000, p. 6). Guri-Rosenblit, Sebkova and Teichler (2007) have denoted that 'globalization' is being used more frequently (p. 381). In order to enhance clarity, this paper gives an overview of key thoughts and develops the definition used.

Etymologically, 'internationalization' has a Latin origin, *inter* meaning 'between', and *natio*, 'nation'; the suffix *-ization* implies the process towards the international. Thus it is implied that a nation exists and that nations or institutions purposefully conduct the process of becoming more international (Guri-Rosenblit et al., 2007, p. 381). By analogy, 'globalization' can also be derived from its Latin origin *globus*, 'the globe'; the suffix, *-ization*, consequently describes a process towards worldwide integration: 'The worldwide movement toward economic, financial, trade, and communications integration', according to BusinessDictionary (Globalization, 2017). In the field of higher education, the term 'globalization' generally implies an impact of worldwide economic developments and trends (Guri-Rosenblit et al., 2007, p. 381).

Internationalization is considered to be the process through which a firm moves from operating solely in its domestic marketplace to within international markets (Javalgi, Griffith, & White 2003, p. 186), it encompasses specific policies and programmes undertaken by institutions or governments; it includes a significant degree of autonomy and initiative (Altbach, 2007, p. 26).

By contrast, 'globalization', as defined, is a complex process, including: changing global demography; increasing human mobility; progressive movement towards urban areas; growth of mega-cities; continuous relocation of capital and labour; economic domination of finance capital; communication society (Neubauer, 2014, p. 29); massification and flexibilisation of transnational flows of people, products, finance, images and information (Beerkens & Van der Wende, 2006, p. 62). It is thus defined as a multidimensional concept creating a world homogeneous in terms of sociocultural, technological, political and ideological aspects, driven by principles of free market (Maringe, 2012, p. 24), and is also described as a 'de-nationalizing' force (Hahn, 2003, p. 49).

Whereas globalization is largely described as a non-directed process led by free-market forces (Teichler, 2007, p. 10), internationalization is generally described as a deliberate process conducted by institutions to enhance the international dimension of their activities (Teichler, 2014, p. 183). Pinkwart and Czinkota (2012) have denoted that globalization has 'moved universities to markets' (p. 258).

Both phenomena show a strong interdependence: globalization provides the motivation to internationalize, and internationalization accelerates globalization; universities are considered strong actors within the former (Maringe, 2010, p. 17).

Literature links the emergence of globalization with an intensified competition, increased rate of innovation and traditional threats of entry to market of new providers. Simultaneously, it offers growth opportunities in global markets (Jones & Hill, 2013, pp. 66-67; Sutin & Jacob, 2016, p. 19).

The aspect of time is captured by Pinkwart's (2007) term 'high-speed globalization' ['*Hochgeschwindigkeitsglobalisierung*'] (p. 256), where the emergence of 'big data', technologies that allow the capture and process of large amounts of data, fundamentally changes the role of science, theory and thus universities: Anderson (2008, June 23) has proclaimed 'the end of theory' (pp. 1-3), while Kitchin (2014) has predicted a radical shift in science due to the properties of big data, being huge in volume, fine-grained in resolution, relational thus enabling conjoining, and highly flexible in handling. As to properties seen particularly relevant to science: big data is exhaustive in scope (*N* = all) and created in real time (pp. 1-2). Pinkwart and Abu El-Ella (2012) have added that the increased pace of technological change, increased competition, and shorter innovation lifecycles, puts world universities under pressure of time and global competition (p. 1). Pinkwart and Czinkota (2012) have assessed that universities incur a special cost in providing students and society with orientation knowledge and tools to cope with this situation (p. 259).

1.2.2 Used sources and country-specific challenge

Wherever possible, publicly available data was used: data from the Federal Statistical Office, Science Cosmopolitan 2016 [*Wissenschaft Weltoffen 2016*] (Burkhart, 2016), ministries of education, and other publicly available sources, especially the websites of the universities and – if needed – the Internet archive to capture historical information. Additionally, a survey among all public research universities was conducted on a quantitative basis. For the qualitative part, five interviews were conducted with university presidents or rectors.

The German system of higher education imposes a specific challenge upon research on the topic: originating in the federal structure of Germany, higher education is governed by the 16 states. In order to capture differences in regulations between states, this research presents observable facts regarding the regulation within the 16 states, such as numbers and ratios of international students by state, the role of the states in offering foundation programmes, and a comparison of the Higher Education Acts and their reference to internationalization, as well as a qualitative content analysis of strategic plans (like University Development Plans or similar documents from the website of ministries) published by the respective ministries in charge of universities in the 16 states.

In order to capture the perspective of leaders, this research conducted six interviews with rectors or presidents of universities on their perspective on the internationalization process of their universities. The transcripts were connected to the Leipzig leadership model in order to juxtapose the views expressed in the interviews to the model.

1.2.3 Structure of this thesis and applied research methods

It is the purpose of the paper to examine the internationalization of German public research universities by means of management theory. How can the internationalization outcome of German universities be described? The internationalization outcome is described by the ratio of international students and researchers. In order to eliminate bias that is caused by subject structures (some disciplines are generally more international than others, natural sciences are more international than social sciences in general), this research has used the change in ratio of these two variables. The course of studies is presented in Figure 2 and described below:

The first chapter derives the research approach of this paper from existing literature and defines the key terminology, such as internationalization, globalization, etc. This is supplemented by exploring the development of internationalization and facts about the relevance of the topic to German universities, as well as the German economy and society.

The second chapter outlines the environment in which the internationalization of German universities takes places: as described above, the role of the state governments is presented in terms of legislation, expressed strategies of governments and the attitude towards foundation programmes, and the actual situation within the 16 states. Additionally – in the international context – the framework conditions of German universities are explored with regard to country attractiveness to international students and scientists, by economic criteria, duties and rights of international students with regard to fees, working rights during and after studies, as well as the role of technology and digitalization in higher education. Additionally, the key trends and their impact on higher education are presented, such as globalization, the development of the knowledge economy and the related massification of higher education, its marketization and digitalization. The literature review describes research gaps in the literature on the internationalization of higher education and aims at filling these in the described way.

The third chapter develops hypotheses from management theory with regard to internationalization and tests them against empirical data. The underlying idea is to transfer generally accepted theories and models from other industries to higher education and fully acknowledge the described specifics to which it ascribes. The chapter derives hypotheses from literature on the factors of impact on the internationalization behaviour of German universities. These factors are classified in the categories of strategy, leadership, institutionalization, external validation, and environment. The fourth chapter delivers the operationalization of hypotheses for quantitative hypothesis testing according to quantitative methods, with results presented. Based on the results of the quantitative evaluation, this research makes the attempt to build a model for the internationalization of German higher education.

While quantitative data clearly have the advantage of delivering measurable indicators, they do have the significant downside of describing the past. In order to include future developments, ideas and concepts in place, as well as soft signals for potential change in higher education, this research includes interviews with key rectors and presidents of selected universities in the fifth chapter. Questionnaire and approach are derived from literature, with the results of these interviews evaluated in the context of the Leipzig leadership model, which is applied to the internationalization of German universities with the aim of extracting principles of leadership in public research universities.

In the third and final part, the results of this study are transposed on today's university practice and also to further academic research, pinpointing needs of structural change in favor of internationalization, and its interconnected goals with regard to society, economy and Higher Education policy. Christensen and Eyring's (2011) theory of disruptive innovation, as well as their approach to the innovative university, is presented in this context. The interconnection between the needs of society and economy and universities and their funding is discussed, along with suggestions for the reform of university funding with regard to international students (Pinkwart, 2014b, pp. 36-37). The final conclusion places the topic into the context of current political debate in Germany.

Figure 2 presents an overview of the research design, starting with a literature review, developing hypotheses from literature, testing them against data from survey and research, and deriving first conclusions. These insights are used for the development of the questionnaire leading to a qualitative analysis of expert interviews. All findings contribute to the final conclusion, which includes an outlook of expected developments in the framework of globalization, demographic shift, and digitalization.

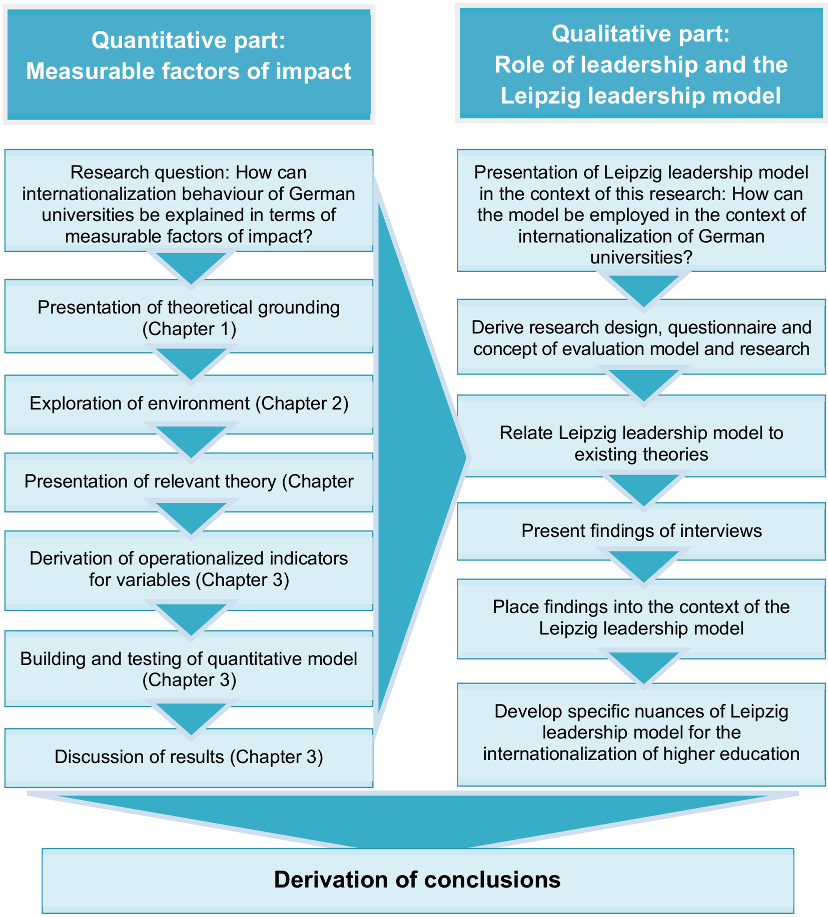

Fig. 2 Structure of research (author's own).

Current State of Literature

2

This chapter aims at laying the foundation for the development of theory on the internationalization of German universities, which takes place within the environment of global trends and developments (Hahn, 2004, p. 25). These aspects encompass globalization and internationalization in general, and in regard to higher education in particular. In the next section, the essence of strategy and strategic management in general, and in the context of higher education, is explored by presenting key theories. In the field of the internationalization of higher education, selected theories containing valuable insights are presented, with these insights extracted and consolidated.

As it is essential to strategic management to align organizations with their strengths and their external environment, the most impactful trends for the issue are presented: the development towards a global knowledge economy and the massification of higher education; the relevance of markets in the internationalization of higher education, and the impact of technology represented by the emergence of virtual education.

Based on this literature review, research gaps are identified and steps towards filling them are presented.

2.1 Theories of Internationalization and Application to Higher Education

Internationalization is considered to be the process through which a firm moves from operating solely in its domestic marketplace to international markets (Andersen, 1993; Buckley & Casson, 1996, pp. 870-871).

International services differ from domestic services in that they cross borders and embrace a foreign culture (Javalgi et al., 2003, p. 186). They are thus a deliberate, controlled and generally aligned set of actions, in contrast to the market-driven force of globalization.

U. Bremer, *Internationalization Strategies of German Universities*,
Schriftenreihe der HHL Leipzig Graduate School of Management,
https://doi.org/10.1007/978-3-658-22133-1_2

Three main pillars of research can be identified: theories of external trade, theories of direct investment, and holistic theories of internationalization. Given the nature and restrictions of German public research universities, external trade and direct investment show little relevance for their internationalization. Thus, this research will present selected, holistic theories of internationalization in order to link observed internationalization behaviour to existing theory. The following models will be presented: Porter's national diamond model (Porter, 1990), the Uppsala model (Edwards & Edwards, 2001; Johanson & Vahlne, 1977), and a matrix for the internationalization of higher education (Foskett, 2012).

Porter (1990) developed the diamond model, aiming at explaining the competitive advantage of nations. His research was inspired by the observation that a number of successful companies have their roots in the same country. According to his theory, the interplay of his four diamond factors (factors of production; associated businesses; sophisticated domestic buyers, and domestic rivalry) produces a nation's competitive advantage. Regarding the factors of production, Porter focuses on the quality of the available **nation-specific skills**, such as the ability to deal with non-existent natural resources that can generate hard-to-imitate competitive advantages.

This aspect could become highly relevant to German universities in the context of the 'energy-transition', i.e., the shift towards renewable energies. As Pinkwart has shown, German universities are increasingly successful in transforming intellectual capacity into filed patents (Pinkwart, 2012b, pp. 28-29).

Conditions of demand: Customers with a highly developed taste and very specific demand train domestic companies for the world market. Textbook examples are the German automotive industry, the American fast food and credit card industries, and the environmentally active industries in Denmark and Germany. Applied to today's situation, Germany seems to be at the forefront of the integration of migration, a task that may arise in many countries in the future. Mustering to this challenge today may create a competitive advantage for the future. Given the knowledge-intensity of today's economy and the strong role of universities in this context, universities could deliver a highly valuable service to society by integrating immigrants into national society and the labour market.

'Related industries' describes the advantage of having down- and upstream industries in the same country. Examples are related consulting services that serve the local industry with invaluable insights on the market. German universities can have a hinge function between research and innovative companies that turn research into products (Porter, 1990, pp. 124-125).

Interplay of strategy, structure and competition describes the matching of companies' strategies with national attitudes towards relative aspects of culture, constitution and competition in the domestic market. Textbook examples are the positive attitudes of Americans towards risk, or the ability of Swiss pharmaceuticals to bear long-term risks based on their good relations with banks. The government is in the position to either foster or reduce national competitive positions by legislation, subsidies, guarantees or direct demand for services (Porter, 1990, pp. 126-127; pp. 617-682). The Excellence Initiative [*Exzellenzinitiative*] (2005), launched by German governmental bodies to enhance the competitive position of German higher education in international markets, serves as an example of government action fostering towards this end (Pinkwart, 2012c, pp. 97-99). Hazard does play a role: discoveries by chance, great technological breakthroughs, and significant changes in capital markets, as well as political or military conflicts, may play a pivotal role in competitive positioning (Porter, 1990, pp. 124-125).

The Uppsala model of internationalization examines the process of internationalization rather than the static position of an organization in this matter. The model assumes that organizations conduct their internationalization step by step, enhancing the degree of sophistication in both mode of entry and type of country, as described in the following Figure 3 (Meffert & Bruhn, 2012, p. 456). Many other models refer to this incremental approach to internationalization.

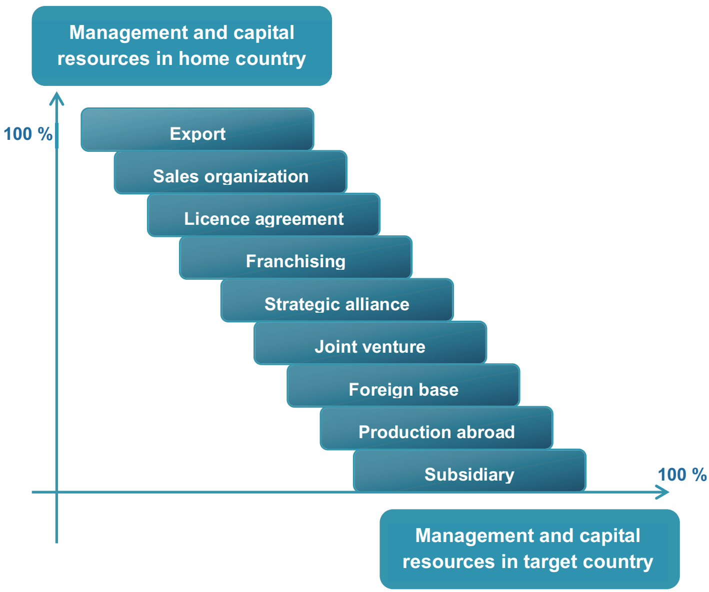

Fig. 3 Forms of international market entry (from Meffert & Bruhn, 2012, p. 456; author's own).

The Uppsala model introduces two aspects that are expected to largely determine the path of internationalization of the organization: psychic distance between the country of the organization and the target market, and knowledge.

The psychic distance chain observes factors preventing firms learning and understanding about foreign markets via the environment, including differences in language education, management practices, and industrial development; based on recent developments, one is inclined to add religion as a further factor of potential disturbance. The theory predicts that culturally similar countries are approached first, and that culturally more demanding and probably more difficult-to-handle countries are entered later; accordingly, the mode of entry starts through trade before moving to more demanding modes of operation (Johanson & Vahlne, 1977, pp. 24-25).

Johanson and Vahlne (1977) consider knowledge to be essential for internationalization and differentiate between objective and experimental knowledge – whereas the first can be taught, the latter can only be obtained by experience. Experimental knowledge is considered of highest relevance to internationalization, as it provides the framework for detecting and evaluating opportunities. It is especially valuable in foreign markets where market-specific knowledge, including cultural patterns, structure of systems, and characteristics of individuals, are essential to success (pp. 27-28).

The Uppsala model has been directly applied to the internationalization process of universities, with Edwards and Edwards (2001) having applied the incremental pathway of internationalization to the process in universities, translating the concepts to this specific environment. Thus, export is equivalent to international student recruitment, an international sales organization is mirrored in educational agent corporations, franchising can be directly applied as an educational franchise, strategic alliance is translated into faculty and staff exchange, as well as joint development of programmes and research, joint ventures as a joint operation abroad, and all operations in the target country as campus operations operated by the German university. In addition to a theoretical explanation of incremental internationalization, the model delivers theory for the shift of mode: it assumes that organizations are likely to consider operations abroad in a well-known market (pp. 76-89).

Foskett (2012) developed the following typology for the internationalization of universities (pp. 44-45). Contrasting most other industries, higher education can be internationalized domestically, for example, by teaching in a foreign language or by including international elements into the curriculum. This concept is presented in further detail in this research. The new system uses the dimensions of Internationalization at Home (IaH) and internationalization abroad, describing where the elements of internationalization take place.

As presented in Figure 4 below, these criteria create a matrix, consisting of four to five fields: domestic universities focusing on their domestic market; imperialist universities delivering national standards offshore, and internationally oriented universities of three different types: internationally aware institutions employing the concept of Internationalization at Home while refraining from activities abroad; internationally engaged institutions adding elements of internationalization abroad, and internationally focused universities employing all means of internationalization.

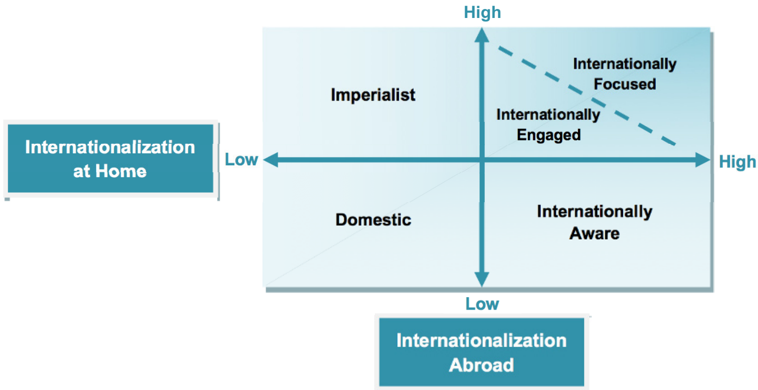

Fig. 4 Model of university internationalization strategy (Foskett, 2012, pp. 44-45; author's own).

2.2 Overview of Theories on Strategic Management

The literature has produced a plethora of approaches to strategic management. This research presents theories based on five foci relevant to the topic:

1. Focus on the plan: this approach assumes that generally the top management creates a strategic plan that is executed by the organization (Ansoff, 1987b; Porter, 2004).
2. Focus on structure: this approach links strategy to institutional structures (Chandler, 1972; Jones & Hill, 2013).
3. Focus on the process: this approach emphasizes the process through which strategy is developed (Hungenberg, 2014; Peters, 2010; Quinn, 1980).

4. The absence of strategy as a deliberate choice and a viable option (Baskin, 1998; Inkpen & Choudhury, 1995).
5. Focus on the interrelation of strategy and culture (Mintzberg, Ahlstrand, & Lampel, 2005; Schein, 2010).

1 Theories emphasizing the planning aspect of strategic management assume that generally the top management is able to produce a codified strategy, which aligns institutional actions according to its objectives. Models of this kind generally analyse factors of impact, which include the market, defined by customers, suppliers, existing and potential competitors, external influences, such as all kinds of regulation and technology, as well as the institution's profile in these criteria. The most influential authors of this group are Porter and Ansoff.

Porter (2004) categorized factors of impact in his 'five forces model', encompassing the threat of new entrants, substitutes, the bargaining power of customers and suppliers, as well as industry rivalry. The result of this analysis is diagnosis of a business unit's competitive position and can be used for further analysis and action. Ansoff (1987b) developed the instrument of the 'product-market matrix', encompassing the dimensions of product and market, both existing and new, thus four fields emerge: existing products in existing markets (continuation of the present business model), new products in existing markets (product innovation), existing products in new markets (new markets) and innovation in both dimensions (diversification).

2 Theories emphasizing the interrelation of strategy and structure, based on the theoretical grounding for the interrelation of strategy and structure, were laid by the historian, Chandler (1972), who empirically examined the historical interrelation between strategy and structure before the early 1960s. He found empirical evidence that structure tends to follow strategy, but often not as intended: new strategies created new administrative problems, creating a decline in profitability, which encouraged new structures. As a result, a shift in strategy was followed by new structures, including a learning loop.

Referring to Chandler's findings, most authors in strategic management recommend a proactive approach to the interconnection of strategy and structure: Thompson and Strickland (1999) emphasized the relevance of structure for strategy execution and asserted that strategically relevant activities need to be mapped prominently in the organizational structure (pp. 281-282). Jones & Hill (2013) drew attention towards the bureaucratic cost of new structures: these may be needed to perform new activities, but the cost incurred has to be taken into account (pp. 406-407).

3 Theories emphasizing strategic management as a process focus on different steps taken in the craft of strategy. These approaches have in common that they recognize the complexity of institutional environments and thus suggest an ongoing process.

Thompson and Strickland (1999) defined the strategy-making and implementing process as encompassing five tasks: starting with (a) development of a strategic vision and business mission, to (b) setting objectives, then (c) crafting a strategy, (d) implementing and executing it, and finally (e) evaluating performance and reviewing the strategy, then restarting the process (pp. 3-4). Similarly, Dess, Lumpkin, Eisner, and McNamara (2014) described the process as encompassing strategic analysis, strategy formulation and strategy implementation. No difference in substance can be detected; the process of strategic management is largely consensual in literature (pp. 7-18). In the German literature, Hungenberg (2014) reduced the process to three components: strategic analysis, strategy formulation and selection, and strategy implementation. The components of this process correspond to those already described (pp. 9-10).

One aspect of process-oriented theories is formed by the learning approach to strategy: the underlying assumption is that strategy is perceived as emerging and as the result of a permanent trial-and-error process (Mintzberg et al., 2005, pp. 203-210). In contrast to the planning approach to strategy, theorists of this school do not believe in strategy as the result of a planning process, but as emerging as the organization moves along; strategies emerge through incremental changes and are consolidated into strategy. Additionally, the authors point to the real-life challenges of leaders, such as receiving all relevant information, working with the existing political powers in the organization, and creating a culture allowing and encouraging attempts and mistakes (Mintzberg et al., 2005, pp. 175-231).

Quinn (1980) developed a theory of what he calls 'logical incrementalism', encompassing a change of perspective and organizational consciousness, deliberate structural flexibility, continuously trying 'test balloons' and not considering strategy as a linear process. Other authors have come to similar conclusions by using entirely different approaches. By observing successful firms, Peters (2010) extracted 163 little things that contribute to excellence. He drew the conclusion that the combination of a sense of mission and the sum of little things create excellence. The effectuation approach to management deliberately invites outside events to enrich strategy; the focus is on organizational learning rather than perfect strategy from the start (Faschingbauer, 2013).

Senge (2006) outlined the learning organization by five virtues: **personal mastery** starts with the individual and describes dedication to the truth; exploring and deliberately modifying **mental models** (deeply rooted assumptions strongly influencing individual and collective thoughts and actions); the **aspiration of a**

shared vision in order to set free genuine commitment; **team learning**, requiring the suspension of all assumptions and the entering of a joint process of thinking; and **systems thinking**, integrating all other aspects and creating the learning organization.

Universities serve these purposes by mission: they are to enhance knowledge and to promote junior researchers (Federal Ministry of Justice and Protection of Consumers [*Bundesministerium für Justiz und Verbraucherschutz*], 1976/2007, April 12, § 2). They are dedicated to exploring the truth, and form the community of scholars beyond hierarchies (Casper, 2014, pp. 9-11). Universities' bottom-up approach in internationalization delivers the opportunity to include the ideas of faculty (Pinkwart & Czinkota, 2012, p. 257). The integration of both top-down and bottom-up modes, and of the inherent knowledge of the institution, enriches the process of internationalization (Hahn, 2004, p. 334). Universities and their environments are dedicated to knowledge and its application: Pinkwart (2012a) has proclaimed enhancements of universities' missions and the Humboldtian base by additional forms of cooperation and mutual exchange between economy, science and politics as a means to proactively engage in technology transfer, especially in academic start-up companies (pp. 60-64).

4 Theories on the absence of strategy contrast the conventional wisdom that strategy is essential to organizational success, thus the absence of strategy would consequently be considered a failure. As Inkpen and Choudhury (1995) have shown, citing Chrisman (1988), and Miles and Snow (1978), without strategy, organizations move into the 'stuck-in-the-middle position' defined by Porter (Inkpen & Choudhury, 1995, pp. 315-317). However, other interpretations are offered by the authors: periods of transition, and absence as a virtue. In the former, strategy needs to be changed; adherence to the existing strategy is likely to be counterproductive, as it was not designed for the new environment.

Absence of strategy as a virtue is underpinned by two options. In the first, constructive ambiguity describes a management fully aware of outside challenges and owning a characteristic tolerance of ambiguity. The second option is based on the idea that strategy development is time-consuming, and the fact that management does not engage in this process can be considered as showing it to be focused on its tasks. It can thus be considered a valuable signal for a 'hands-on culture' (Inkpen & Choudhury, 1995, pp. 315-320).

Whereas most authors require codified strategy in order to attest that a strategy exists, Mintzberg et al. (2005) have offered a new definition of strategy: a pattern of action (pp. 175-230). A similar perception of strategy has been developed around the concept of corporate DNA, which assumes that institutions – like living beings

– develop their DNA, which controls their actions. The idea behind the concept is that patterns of thought and action are powerful, so that a written strategy is not necessary to align actions (Baskin, 1998, p. 86). The bottom-up approach of universities, especially in the field of internationalization (Pinkwart & Czinkota, 2012, p. 257), combined with Pinkwart's (2017) proclamation of the purpose-driven organization, presents universities as organizations that may be governed – to a significant extent – by commonly shared values.

5. Culture and strategy, emphasizing the impact of organizational culture in the context of strategy. Influential schools of strategic management attribute a limited influence to codified strategy, as shown above. But if codified strategy is not decisive, what drives members of organizations? Mintzberg et al. (2005) have pointed to organizational culture as a pivotal factor of influence on strategy-relevant aspects, defining organizational culture as the organization's mind, shaping actions, thoughts and decisions. Citing Johnson (1987), the authors describe strategy formation as social interaction between members of the organization, strongly influenced by individual beliefs, often tacit and nonverbal; consequently, strategy is largely rooted in collective intentions (Mintzberg et al., 2005, pp. 265-266). Schein (2010) has considered culture to be below the surface, powerful, invisible, to a considerable degree unconscious, being a strong power of influence on the organization, and serving as a powerful tool for understanding organizations (pp. 13-15). The Leipzig leadership model demands a culture of trust in order to encourage members of the organization to act proactively, show self-initiative and deliberately take risks (Kirchgeorg et al., 2016, pp. 82-83).

Table 2, on the following page, presents an overview of schools of strategic management and includes their relevance for this research.

Table 2 Overview of Schools of Strategic Management

Management School	Key Idea	Relevance for this Research	
Strategic management as activity of planning	Top management to craft organizational strategy	Concept delivers base for hypothesis that codified internationalization strategy facilitates internationalization	Porter (2004), Ansoff (1987b)
Focus on shaping of structures by top management	Structure follows strategy: shift in strategy needs to be followed by a change in organizational structure	Concept delivers base for hypothesis that structural elements facilitate internationalization	Chandler (1972), Thompson and Strickland (1999), Jones and Hill (2013)
Process orientation of strategic management	Top management to conduct a process of strategic management	Given the focus of this research, this aspect is not further evaluated	Thompson and Strickland (1999), Jones and Hill (2013)
Learning approach to strategic management, logical incrementalism	Environmental changes too frequent and too fast to follow predesigned strategy, continuous learning required	Concept is further discussed in the qualitative section of this research and the outlook	Mintzberg et al. (2005), Quinn (1980), Peters (2010), Faschingbauer (2013)
Absence of codified strategy as a strategy	Absence of strategy is considered a viable option that may be preferable to an outdated strategy	Concept is discussed when evaluating universities without internationalization strategy	Inkpen and Choudhury (1995), Baskin (1998); Strategy as pattern of actions: Mintzberg et al. (2005)
Corporate culture and strategy	Institutional culture profoundly shapes strategy process	Concept is further discussed in the qualitative section of this research and the outlook	Schein (2010), Mintzberg et al. (2005), Johnson (1987)

2.3 Insights from Selected Existing Strategy Models

This section aims at providing an overview of existing strategy models for the internationalization of higher education in the perspective of this research. The models are described first; their relevance for this research is extracted and summarized at the end of this section.

2.3.1 The Davies model: Degree of strategic alignment and significance of internationalization

The following model of internationalization is described in greater detail, as it contains several aspects that were used in several parts of this research. Davies (1995) describes internationalization as a general trend, facilitated and fuelled by a number of factors. These include the need for universities to diversify their income, a philosophical commitment to internationalization, and altruistic approaches towards developing countries. He developed his theory for UK universities, and includes practically all kinds of internationalization of academia, such as student, staff and faculty mobility, international research, technology transfer and continuing education (pp. 3-15). Davies mentions – as do many other authors – the inherent international aspect of knowledge, and consequently of academia and universities.

He presents a three-phase approach to the development of universities' international strategy, as portrayed in Figure 5, below.

Fig. 5 Model of university internationalization (from Davies, 1992, p. 190; author's own).

Davies (1992) adds that university missions may be explicit or implicit, expressing a preference for clear and explicit statements in order to allocate resources accordingly. He outlines the requirements for an internationalization strategy, which is to answer the following questions:

- 'Why does the university want to internationalize?' asks for the underlying motivation
- 'How intensively should internationalization be conducted?' asks for the underlying definition of internationalization
- 'Which destination markets?' asks for the geographical direction of internationalization
- 'Is internationalization central to the university or rather marginal?' asks for the significance of internationalization to the university
- 'Are target figures outlined as clear figures?' asks for the kind of commitment to internationalization (Davies, 1992, pp. 178-180)

Davies (1995) explores a number of aspects, but this paper focuses on those relevant to German universities and the scope of the paper. He poses the following questions regarding the programmatic level of universities:

- Do university degree programmes include international elements at the curricular level?
- Is there an approach to diversity management?
- Are there international partnerships in place that facilitate international experience at different levels (i.e., fully integrated joint-degree programmes at the upper level and loose exchange options at a lower level of international integration)? (Davies, 1995, pp. 7-8)

He emphasizes that successful internationalization is facilitated via attitudes, skills and knowledge by faculty and staff, expressed by teaching in different languages and internationally accepted materials for distance learning (Davies, 1995, p. 8). He recommends specialized departments for the initiation of international partnerships, emphasizes the relevance of global partnerships and consortia, and points to the option of franchised operations in source countries (Davies, 1995, pp. 10-12).

Davies (1995) adds another aspect necessary to successful internationalization: the fact that the university itself wants to internationalize, believes it can do so, and provides resources to execute this, is a necessary but insufficient condition. Only if it is accompanied by a reputation for internationalization in the market can internationalization work (p. 12).

Davies (1995) describes the environment of internationalization as volatile and unstable. It seems that – since publication in 1995 – this volatility has even increased (Syrian conflict, Islamic State, refugee crisis). He suggests that universities tackle this aspect by means of a clear segmentation of the world, target markets, and cooperation with governmental or intergovernmental institutions.

He concludes by offering a typology for universities to assess their competitive situation:

- **Leaders** raise the requirement for themselves to lead the field of competition
- **Challengers** chase the leaders with similar ambitions
- **Followers** try to keep their market share stable
- **Strugglers** are unable to enter the international markets
- **Nichers** have created their monopoly position in small segments of the market (Davies, 1995, pp. 13-14)

Additionally, Davies (1995) presents a matrix for the level of internationalization of the single university, referring to the university's preference for internationalization and its market position, which consists of the dimension, centrality and level of systematic approach. Centrality covers the relevance of internationalization for the university; this aspect is reflected in this paper's analysis of mission statements of German universities, in order to decipher how relevant internationalization is to each university. The level of systematic approach captures the extent to which university leadership aligns all international efforts according to central goals and targets. The challenges of leading academics according to organizational goals are further discussed in this paper, and this aspect comprises part of the qualitative interviews on leaders' views on internationalization.

As portrayed in the following Figure 6, all combinations are possible; the intuitively appealing options of high centrality plus systematic approach, and marginal with an ad hoc approach, represent clear-cut decisions by the university to either internationalize systematically or only engage in it marginally. The other options generally deliver these results: a systematic, marginal approach may be considered a skimming strategy, focusing on quick-wins; at the other extreme, high centrality coupled with an ad hoc approach will generally deliver difficult repercussions, as the strategic relevance (high centrality) is not matched by the approach. Davies (1995) attests that marketing in this field is usually 'ill-focused' (pp. 15-17).

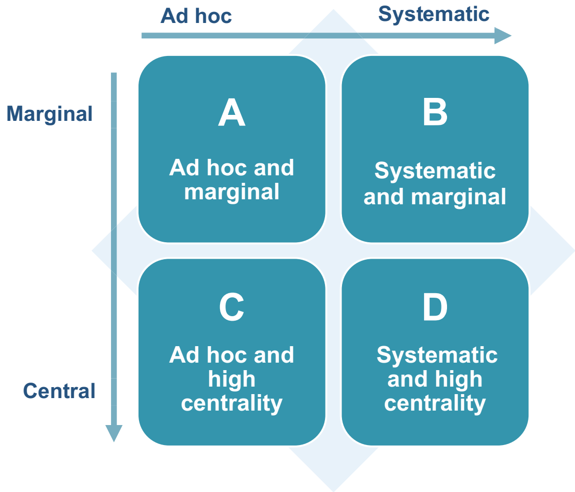

Fig. 6 Typology of universities' internationalization approaches (from Davies, 1995, p. 16; author's own).

2.3.2 The Knight and De Wit model: Process model of internationalization

In their comprehensive treatment of internationalization of universities, the authors provide a systematic analysis of rationales as to why universities internationalize. These aspects are included in the hypothesis generation for qualitative research and the interviews. They delimit their approach as process-oriented, as opposed to activity-, competency-, and ethos-based approaches.

Knight and De Wit (1995) underscore the relevance of strategy: unless accompanied by organizational support, international activities 'may die when supporters believe the institution resources become scarcer or new priorities emerge' (p. 20), and the provision of a framework for the organizational strategy of the university to facilitate internationalization. These aspects emphasize the necessity of the organization to receive support from leadership and the critical mass of employees, as well as the necessity to make internationalization a relevant activity in terms of an organizational unit to support and reflect its strategy and mission (pp. 9-14).

Whereas most other models consider internationalization a static-linear process, in which one best option can generally be determined, the authors present a cyclical view of the internationalization process in six phases (Knight & De Wit, 1995, pp. 9-14), as depicted in Figure 7, below.

Fig. 7 Process model of internationalization (from Knight & De Wit, 1995, p. 26; author's own).

The authors describe the process of internationalization as follows (Knight & De Wit, 1995, pp. 9-14):

1. **Awareness**. The authors emphasize the need for university-wide support for internationalization and claim it is impossible for a small group to conduct the process successfully. This is to be achieved through discussions, which ideally reveal the benefits of internationalization and create awareness of its necessity amongst faculty, students and staff.
2. **Commitment**. Unless converted into subsequent action, any kind of declaration remains empty. The necessary ingredient is commitment by the stakeholder to act upon the awareness.
3. **Planning**. Given the complexity of the university and internationalization, the plan has been to answer the key questions: why, how, what intended outcome? To distinguish planning from general strategy, the former – according to these authors' definition – is more concrete and involves the stakeholders of the uni-

versities. The authors consider the mission statement a relevant instrument in this context and consider reference to internationalization to be critical. Based on this general declaration of organizational goal, internationalization strategy and operational plans are to be crafted. In this context, existing interests and organizational specifics are crucial to be respected – if not, 'turfdom' is likely to emerge.

4. **Implementation**. Based on their holistic definition of internationalization (involving all aspects of academic activity), this phase is to coordinate strategy, resources and organizational realities.
5. **Review.** As in any process of management, the process of internationalization has to undergo evaluation and testing in order to integrate learning and deviations into further planning. In this context, review delivers an additional benefit: given that internationalization is new to the institution, constant review integrates it into the processes of planning and budgeting, thus enhancing general organizational awareness.
6. **Reinforcement**. Knight and De Wit (1995) present a sixth phase to deliberately influence the university's culture and reward successful efforts of internationalization. Ideally, this enhances commitment and accelerates implementation, as the organizational focus is directed towards internationalization. This phase is central to the model, as reinforcements and rewards should enhance awareness and commitments, while the broader base of commitments enhances the planning process and facilitates new activities.

Overall, the cycle of internationalization aims at creating continuous innovation and integrating the international dimension into the university system and culture. Thus, the model delivers a holistic, management-like approach to internationalization, emphasizing aspects of culture represented by awareness, as well as aspects of management represented by the facets of planning, implementation, rescue and reinforcement (Knight & De Wit, 1995, p. 28).

2.3.3 The Van der Wende model: Internationalizing the curriculum

Van der Wende (1996), referring to an OECD/CERI (Organisation for Economic Co-operation and Development/Centre for Educational Research and Innovation) study, describes the concept of internationalization of the curriculum as a means of internationalizing higher education. Although reporting findings in the Netherlands, the general idea is also transferable to the German situation (p. 186). The author describes the concept of international education for non-mobile students, the underlying idea being the enhancement of curricula by the international dimension, without the necessity for physical mobility. This concept was developed long before information technologies created the option to study internationally without moving geographically; it encompasses international elements at the home university.

The method of choice is the international curriculum, which is defined as 'curricula with an international orientation and content aimed at preparing students for performing (professionally/socially) in an international and multicultural context, designed for domestic and/or foreign students' (Van der Wende, 1996, pp. 186-187). The concept employs a very broad definition, including curricula with international subjects; internationally comparative approaches; preparatory programmes for international professions; curricular foreign languages; interdisciplinary programmes covering more than one country; curricula preparing for internationally accepted qualifications; double-degree programmes; curricula with compulsory stays abroad, and curricula especially designed for foreign students (Van der Wende, 1996, pp. 186-187).

Van der Wende (1996) derives an ideal setup for the development of internationalized curricula as interplay of innovators, staff involvement and policy, as well as an assessment for comprehensiveness and complexity. The author points out that the role of innovator can be taken by innovative members of the faculty developing internationalized curricula – however, their work should be supported and endorsed at an early stage by institutional strategy that encourages initiatives and activities at faculty level. The ideal consequence is the involvement and commitment of other organizational entities to support the process (pp. 189-190).

The author delivers a guideline to assess the comprehensiveness of internationalization of curricula, including range and orientation of curriculum, development setting and target group. As shown in the following Figures 8 and 9, higher levels of comprehensiveness are reached by the inclusion of the entire curriculum into the internationalization process, complexity (inter-disciplinarity), additional international partners, as well as targeting both domestic and foreign students (Van der Wende, 1996, p. 191).

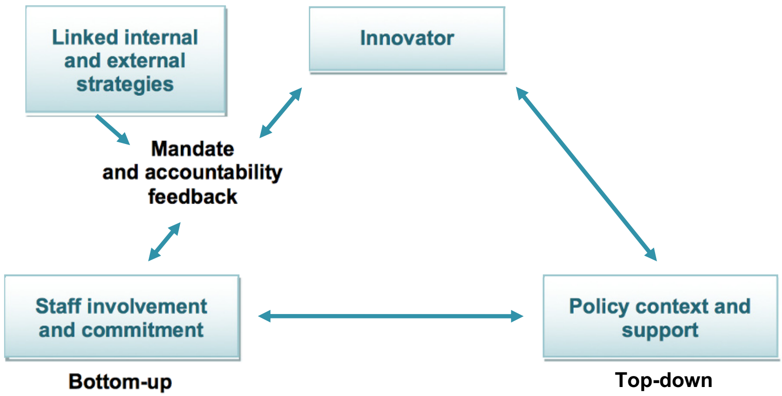

Fig. 8 Role of actors in development of international curricula (from Van der Wende, 1996, p. 191; author's own).

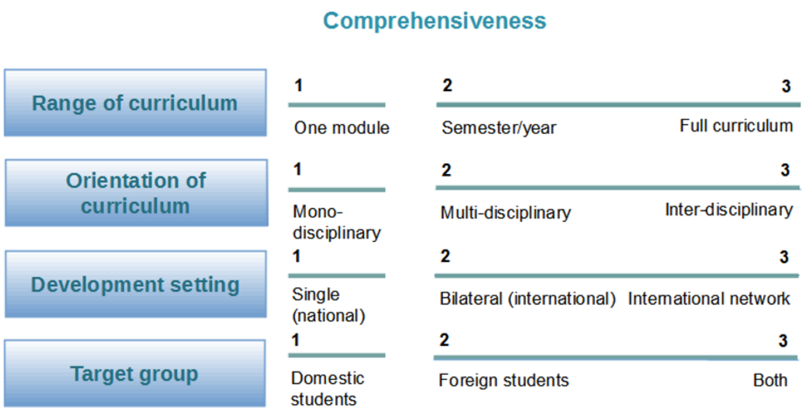

Fig. 9 Level of comprehensiveness in curricula (from Van der Wende, 1996, p. 191; author's own).

The author derives a number of prerequisites for the success of internationalized curricula: given the high complexity of many projects like this, activities at faculty and institutional level should be aligned according to the common goal; he procures a high relevance of policy in the process. In addition to these largely quantifiable factors, the author adds 'soft' ones that also have a high impact on the success of these programmes: strong coordination by leading academics, involving open-minded people with strong communication skills and the availability of administrative support, including foreign-language proficiency, as well as a careful selection of both students and staff. At the time of publication in 1996, Van der Wende assessed that internationalized curricula would be an 'island' or an 'inner circle business', as they involve only a small group of people. This effect is enforced by the fact that projects of this kind are often supported by external, temporarily available funds. Thus – upon expiration of these funds – leadership and faculty are to decide whether these programmes will be implemented in the general curricula of the institution (p. 193).

Van der Wende (1996) denotes a number of benefits for students. At the cognitive level they gain international knowledge, a wider knowledge in their subject, and become more flexible analytically. At the level of attitudes, their thinking is enhanced by the global dimension productively challenging habits of their home country. At the level of skills, they learn to cooperate with people having fundamentally different attitudes and backgrounds, captured as 'intercultural competence' (p. 193).

Van der Wende (1996) considers the process of internationalizing the curriculum as one of innovation and change, including the respective phases (adoption, implementation and institutionalization), emphasizes the relevance of combining bottom-up and top-down fluency, and of managing commitment and motivation. The author adds that the success of internationalized curricula is linked to the presence of international students – and that international curricula provide additional benefits in terms of educational quality to non-international students and staff, as well as providing international experience without the necessity of leaving the country (p. 195).

2.3.4 The Neave model: Leadership- vs. base unit-driven internationalization

Neave (1992, December 10) conducted case studies in eight universities selected by theoretical sampling, thus diverse in terms of public/private ownership, country of origin, and type of framework conditions for universities, and considered 'typical' for their category (pp. 98-99). The author considers the application of strategic management to internationalization and organizational decision-making, and outlines the consequences of applying principles of management to the international cooperation, with consequential 'profiling, concentration around excellence, prioritization' (p. 164).

Accordingly, Neave (1992, December 10) presents two options to conduct internationalization, differentiating international cooperations by authorship: In base unit-driven partnerships, academics at faculty and departmental level are the initiators and are generally responsible. By contrast, in leadership-driven partnerships, central departments – reporting to rector, vice-rector or any other hierarchical instances in charge of international partnerships – initiate partnerships and have no link to faculty level (p. 164).

Neave (1992, December 10) offers the alternative titles of 'academic consensual' and 'managerial rational', and emphasizes the fact that these two do not represent all the available options. However, they define the extreme positions of a continuum that contains all options available. Neave denotes that change in type of partnership generally occurs when either the strategy-making competence of leadership is challenged or framework conditions (guidelines or directives from owner/ministry) change. The introduction of strategic management reduces stability as it, by definition, serves as a tool for adjusting to external environments and makes administrative structures increasingly preliminary. Additionally, strategic management approaches in internationalization lead to 'profiling': a process of concentration on fields that deliver results that are perceived as valuable to the institution; the focus is not necessarily the satisfaction of demand for international higher education (p. 168-169).

He concedes that the skillsets required in the management and administration of the university varies according to whether strategy is in place and to which extent government influence is exercised. He concludes that partnerships in higher education should not be reduced to the academic perspective – the administration does have a significant impact on their outcomes. The inclusion of administrators in projects of internationalization may enhance the quality of administrative processes in all universities involved (Neave, 1992, December 10, pp. 89-169).

The model delivers an approach to a central conflict of management practices in the environment of higher education by juxtaposing approaches of leaders to centralize and align efforts according to strategy on one hand, and of individual efforts and academic freedom on the other hand.

Figure 10 presents four fields of a matrix delimiting approaches to internationalization by the scope of institutional strategy and the underlying leadership model, contrasting base unit- vs. leadership-driven approaches according to role model and division of tasks.

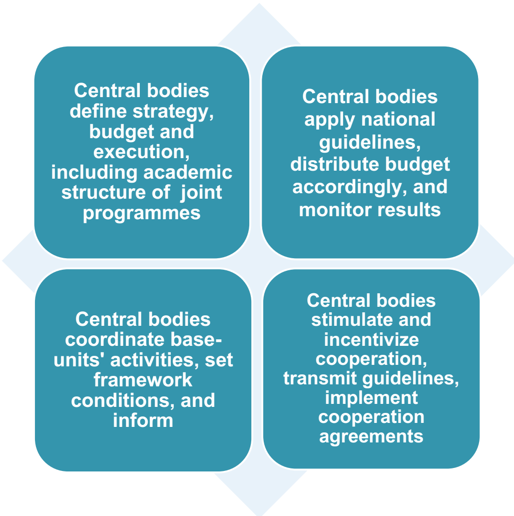

Fig. 10 Base-unit vs. centrally managed approach to university partnerships (from Neave, 1992, December 10, p. 169; author's own).

2.3.5 The Rudzki model: Integrated, six-stage model of internationalization

Rudzki (1998) developed a model of internationalization of universities based on a combination of existing theory and his own work, encompassing a quantitative survey and case studies among British institutions. The author defines internationalization as a 'process of organizational change, curriculum innovation, staff development and student mobility for the purpose of attaining excellence in teaching, research and other activities' (p. 16). As a result, the author presents an integrated six-phase model, as described below and in the following Figure 11 (pp. 220-231; 2000):

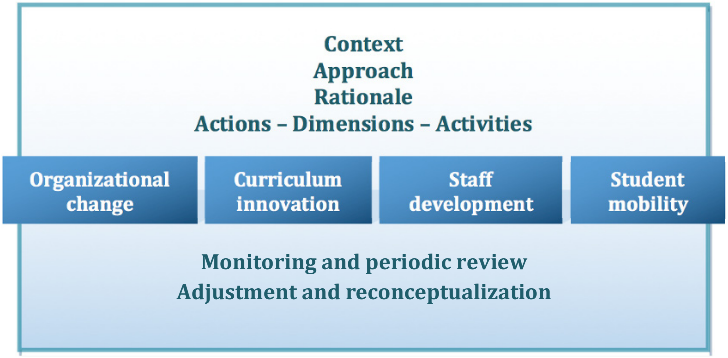

Fig. 11 Integrated six-phase model (from Rudzki, 2000, p. 81; author's own).

Phase 1 'Context' starts by analysing the context internally and externally as a prerequisite of a strategy consistent with internal and external realities. The external analysis is common to strategic management; it includes the analysis of markets, transnational opportunities, and offers for support (for example, by agencies like DAAD) and funding, and can be conducted at the organizational and individual level.

Within **Phase 2 'Approach',** the university decides upon its approach for internationalization. Similar to the Davies model, Rudzki (2000) differentiates between proactive on the one side, and reactive, covert, non-existent or deliberate non-engagement approaches on the other, between which he assumes a continuum. He further assumes that passive approaches respond to external inputs (such as opportunities for extra funding); covert approaches operate without strategy and official support; non-existent approaches are simply from a lack of engagement, activity and even an expressed desire to change this. Non-engagement approaches form the extreme position and even codify non-engagement as the official strategy.

Phase 3 'Rationale' determines the rationale, the motivation to internationalize. Rudzki (2000) categorizes economic/political versus cultural/educational rationales, which apply both at the individual and organizational levels. The author emphasizes the relevance of clarification of the underlying rationale as a determining factor for the direction of internationalization.

Phase 4 'Actions/Dimensions/Activities' refers to the original definition of internationalization and encompasses the four dimensions of internationalization: organizational change, curriculum innovation, staff development, and student mobility.

Rudzki (2000) defines **organizational change** as commitment towards internationalization expressed by the formation of global networks, the facilitation of international research and the establishment of joint research and degrees with international partners. **Curriculum innovation** comprises – as in other models – the inclusion of foreign languages and aspects of Internationalization at Home (by including international elements in the taught programmes). He defines **staff development** as enabling faculty and staff to deal with internationalization; this includes exchange programmes and all efforts to professionalize the management of the internationalization process by the university's employees. Rudzki defines **student mobility** in a broad sense and – besides the obvious physical mobility – includes intellectual mobility, defined by access to overseas lecturers and literature.

Phase 5 'Monitoring and periodic review' delivers the feedback cycle to the goals developed above. Any model for strategy and change considers this type of activity essential to the process, as the benefits are reaped in implementation rather than in the pure craft of strategy, and contribute to a permanent process of improvement.

Phase 6 'Adjustment and reconceptualization' follows the feedback cycle by putting its insights into action, and conducts the adjustments towards the in- and external environment. Rudzki (2000) delivers the example of a consolidation strategy in international partnership agreements at the institutional level (pp. 85-86).

Overall, the model delivers a straightforward application of all strategic management techniques to the internationalization of higher education and thus provides instruments to describe existing activities in the field. At the normative level, the author claims that internationalization of higher education is a necessity to global mutual understanding (Rudzki, 2000, pp. 88-89).

2.3.6 The Mazzarol & Soutar model: Applied business theory to higher education

Mazzarol and Soutar (1999; 2001), in their publications, aim at explaining organizational success in institutions of higher education. They define higher education as a 'marketable service', consequently applying principles of management theory (2001, pp. 1-2), and define success by profits and market share. Strategy is viewed as an iterative process in response to the institution's environment, and its objective is to create sustainable competitive advantage, defined by value, relative scarcity, non- (or at least imperfect) imitability, and the absence of strategically equivalent alternatives.

The authors conducted a study among 315 institutions of higher education in five countries (Australia, Canada, New Zealand, UK and USA). The authors built their model on their previous research, as well as expert interviews and a pilot survey. The model aims at creating a link between market success (measured by growth in student numbers) in profitability, and the combination of distinctive competencies resulting in a competitive advantage (Mazzarol & Soutar, 2001, pp. 107-110).

The authors define industry structure and foreign market structure as key factors of impact; industry structure as comprised by barriers to entry, supplier and customer bargaining power, threat of substitutes and industry competitiveness. Foreign market structure is defined by interaction of providers and customers who have a relationship and whose needs are more or less served, thus the entrant has to compete with an ongoing and functioning market. Derived from this aspect, they point to the cost disadvantage to the entrant for bringing together provider and customer (Mazzarol & Soutar, 2001, pp. 107-110).

Mazzarol and Soutar (2001) present two aspects for determining which markets are chosen by institutions: Experience in trade with a country is likely to create more intensive commercial relations, and psychic distance, defined by differences in 'attitudes and perceptions', is likely to act against it. In the next step, the authors suggest the crafting of an external marketing strategy in order to set up the marketing-mix, structure all marketing efforts, and connect the external marketing to the institution's functions. Their model suggests that universities have to respond to market forces, and uses the term 'consumers' for students. The model does assume a threat for substitution by offshore programmes and distance learning (which they call 'interactive multimedia'). Based on the external marketing strategy, the foreign market entry strategy is to be crafted. Mazzarol and Soutar expect that higher education institutions generally have to form coalitions to enter international markets.

Mazzarol and Soutar (2001) derive concrete suggestions from their study: student decision-making processes are driven by perceptions of quality rather than price or cost, although these are not irrelevant. Building on Porter's generic strategies for cost leadership or differentiation, the latter proved to be more successful in higher education (as cited in Mazzarol & Soutar, 2001). Additionally, referring to the aspect of quality, the authors emphasize the relevance of reputation and market profile (pp. 144-147).

Finally, the internal marketing strategy aims at aligning inner-organizational resources according to the institution's official goals. This aspect constitutes a highly significant relevance in the academic environment, as shown later in this paper, where most professors enjoy a high degree of academic freedom, and the university leadership has few options to incentivize them.

As a result of their evaluation, distinctive competencies emerge:

1. **Brand identity**, taken from Porter (as cited in Mazzarol & Soutar, 2001, p. 71), capturing the value attributed by a potential buyer to the brand. For educational institutions, international rankings are key to brand building, as is outlined in the section on rankings. However, the concept of brand does include other aspects, such as communicated utilities, values and other properties perceived by potential and existing students. The pure marketing aspect is not covered in this research and is included in the recommendations for further research.
2. **Coalition formation** describes the process of international joint ventures, making it possible to capture economies of scale and to shape competition.
3. **Forward integration** is defined by the movement into the export channel, usually by means of offshore campuses. Additional options for forward integration have been developed: Twinning arrangements describe a cooperation with a local partner institution offering degree programmes with an 'inbuilt' shift of campus – and the benefit of generally awarding degrees from both partners. Another option has emerged through technology: online-based courses do not require physical presence of students and thus present an innovative means to reduce barriers to entry.
4. **Organizational expertise** describes the ability of the institution to handle internationalization, for example, internationally experienced lecturers and staff. The authors argue that this ability becomes even more valuable in its tacit form, as this makes imitation more difficult.
5. **Organizational culture** captures an institution's core values and beliefs and – although generally not codified – governs its actions, and thus has a high impact on its performance.
6. **Information technology** describes the impact of effective information technology in terms of serving customer needs and processing information. Mazzarol and Soutar (2001) hypothesize that the effective use of information technology provides a significant competitive advantage. This aspect is essential to the analysis of the emergence of MOOCs (massive open online courses) in higher education.

Mazzarol and Soutar (1999) conclude their model with the statement that neither competitive nor sustainable competitive advantage can be directly measured, which is possible for their manifestations in the market place and financial performance. They suggest that institutions should develop distinct competencies as a reaction to their environment and thus create sustainable success (pp. 289-290).

In their later work, the authors have challenged their own model by empirical investigation in Australian universities, and have delivered mixed results: conventional approaches to external and internal marketing seem not to be helpful for higher education; additionally, the concept of 'people and culture' – including the aspects of organizational expertise, a client-oriented culture, as well as effective use of IT – is not supported by data; mass advertising even showed a significant negative correlation.

However, global alliances, the image of quality and reputation, and a differentiated portfolio of courses deliver success in global markets for higher education (Mazzarol & Soutar, 2001, p. 126). The findings provided the basis for the hypothesis that higher education differs substantially from other industries and that the key aspect in higher education is trust in the university selected. Thus, mass advertising creates the impression that the university 'needs' advertising, as it cannot convince students through the quality of its courses.

The authors advance their model by including the following findings. Strategy is built upon the analysis of the institution's environment and its corresponding strength/weakness portfolio. It is to generate a differentiation against the competition and to create and strengthen distinctive competencies, which reduce the risk of imitation by competitors. The competencies are exclusively exhaustive as 'image and products' and 'coalition forward integration'. As data suggest, the aspects of 'people and culture' and 'mass advertising' are presented as inhibiting factors. This process results in market success (Mazzarol & Soutar, 2001, pp. 128-129).

2.3.7 Ayoubi and Massoud's typology of strategic approaches

Ayoubi and Massoud (2007) delivered a study on the link between strategy and internationalization outcome. The authors divide previous studies into three categories: (a) Studies on the recommended content of strategy; (b) Studies on the organizational steps in internationalization, and (c) Studies on the evaluation of the internationalization process (p. 330).

The authors describe the internationalization of universities as a three-phase process: The **first phase** is to set up the design of internationalization (this would be mainly represented by the strategic intent, mission statement, strategic vision, corporate strategy and strategic plan). The **second phase** is to choose the best ways to activate the design with real actions (this is represented by the organizational steps taken by management to implement the design). The **third phase** is to evaluate this process by comparing the design with the implementation (this could be done by comparing real internationalization achievements with the intended initial strategy design) (Ayoubi & Massoud, 2007, pp. 329-330).

The authors employ a combination of qualitative and quantitative methods in order to show a correlation between strategic intent (measured by 'missions, visions and strategies') and internationalization outcomes, the latter operationalized by percentage of overseas students, percentage of income generated through international students (fraction of total university income) and market share of overseas first-year students (Ayoubi & Massoud, 2007, p. 332). The authors developed a concept for measuring strategic intent by the following proxies: Mission statements are evaluated by means of qualitative content analysis in order to capture the level of reference towards internationalization in these documents. Organizational structure is represented by organizational entities to facilitate internationalization, such as a vice chancellor for internationalization. With regards to internationalization strategy, the authors record whether this document exists at all.

Based on these indicators, Ayoubi and Massoud (2007) aim at classifying universities in the abovementioned dimensions of strategic intent and perceived results, by the juxtaposing of the two dimensions and conducting a cluster analysis, as presented in the following Figure 12: Institutions with a lower score in both dimensions are considered 'international losers', as they are not reaping the benefits of internationalization. A high score in both dimensions, as a declared strategic intent underpinned by actions, is classified as 'international winners'; declaring without acting is categorized as 'international speakers', and acting without declaring as 'international actors' (p. 332).

Fig. 12 Matrix of universities' approach to internationalization by strategic intent and action (from Ayoubi & Massoud, 2007, p. 332; author's own).

The model delivers an approach to correlating declared intentions with measurable outcome: it suggests a means to operationalize strategic intent by analysing mission statements of universities, which are generally publicly available – it further suggests defining measurable criteria for the outcome.

2.3.8 Hahn's concepts and strategies for internationalization of German universities

Hahn (2004) built her approach on contract research for the Ministry of Rhineland-Palatina and further developed her concepts with additional case studies from universities in that state, as well as through the integration of literature. The author delivers a holistic approach to strategic internationalization, including the definition of processes, analyses of dimensions, recommendations for actions, and typologies of universities (pp. 1-19; pp. 331- 364). The author concedes that even an elaborate strategy only delivers limited control on the internationalization process, due to two main factors: legal and financial restrictions are beyond the control of the university, and internationalization is largely dependent upon human interaction and cultural impact, with the impact of individuals being higher than in other fields of institutional strategy (p. 327).

The author proclaims a coordinated and well-structured process for the development of strategies derived from the vision, mission and targets (Hahn, 2004, p. 331), as depicted in the figure below.

Fig. 13
Strategy process (from Hahn, 2004, p. 331; author's own).

Under the condition that internationalization is accepted as central to the university and that strategic partnerships are employed as an instrument of strategy, significant change takes place: a reduction of academic freedom in favour of focus on students and an institution-centred approach replaces the person-centred property of international activities (Hahn, 2004, p. 338). Based on the idea that internationalization has an effect on multiple aspects of universities, the author proclaims a fundamental change in structures, organization, as well as organizational culture, and change at the individual level.

The author presents the areas of tension in this field: the expectations of professors, of students, the interests of the organization itself and of external stakeholders need to be taken into account, and the organizational positioning should be reflected in the strategy. With regard to international networks, the author categorizes cooperations along the lines of intensity, starting from informal contacts, to project-based cooperations, cooperations at faculty level, university partnerships, and strategic alliances. The author underscores the benefits of the latter: a growing number of projects require international partners; strategic corporations provide incentives for reliability and are likely to generate synergies between the partners (Hahn, 2004, pp. 325-336).

The author underscores the relevance of technologies and proclaims that they deliver almost unlimited opportunities for international cooperation, allow for diversification of mode of entry, and for access to additional target groups of students. The term 'virtual mobility' is defined as encompassing all activities that enable a potentially transnational project by means of technology. The author points to perspectives to enhance internationalization, develop and deliver degree programmes online, enhance international cooperations by virtual elements, and include remote areas and their students in the internationalization (Hahn, 2004, pp. 191-197).

Based on these ideas, the author develops a typology of three kinds of action orientation, based on particular organizational self-conceptions:

1. **'Blind-chicken' approach to internationalization:** based on the belief that existing structures and strategies are sufficient; internationalization and globalization are not considered to be strong enough to encourage a change of the *status quo*.
2. **Casuistic approach:** internationalization is perceived as an add-on or an opportunity to acquire third-party funding. A substantial change of the university is not intended, international activities are not included in organizational procedures, and international activities are not internally networked. International activities are perceived as exotic, temporary and often random.
3. **'Strategic players'** have strategies for internationalization in place; they think globally and derive locally oriented actions from the internationalization strategy. International activities are internally networked, different facets of internationalization are used and they mutually reinforce each other. (Hahn, 2004, pp. 341-364).

At the time of publication (2004) the author denoted that the majority of German universities did not have a consistent strategy for internationalization in place (Hahn, 2004, pp. 339-341).

2.4 Framework Conditions for the Internationalization of German Universities

2.4.1 Legal framework of German research universities

Governance structures and effect of reforms. Historically, the German higher education sector has always been dominated by the government; the focus was rather on equality, higher education as a human right, than on high-quality research and competition. Consequently, the system offered little room for universities to develop their profiles and strengths (Wintermantel, 2008, p. 93). The regulation of German universities had been derived from the Prussian administration of science, the chancellor being the representative of the state government, head of administration and finance – not for the university but for the government (Blossfeld et al., 2011, pp. 107-108).

The delivery of degree programmes was heavily regulated; there was no incentive for universities to generate income, as these funds would be directly forwarded to the state. Overall, the literature agreed that German universities had few options for development and were over-regulated (Brinckmann, 1998). Internationally, over-regulation is seen as one of the barriers to academic performance; hence, the former governance of German universities was one of the reasons for their limited international performance (Aghion, Dewatripont, Hoxby, Mas-Colell, & Sapir, 2010, pp. 8-9).

The result was an egalitarian landscape of universities: the German system created many good universities, instead of a few excellent ones (Hazelkorn, 2012, p. 838). In an environment of hardly any competition, there was little need for differentiation, profile and strategy: German universities are not used to creating strategies (Hahn, 2005, p. 26).

According to Article 75 [*Grundgesetz*] of the German Constitution, regulation of higher education is conducted by the 16 State Governments [*Länder*]. The Federal Government provides little framework: the relevant law is the Federal Higher Education Act [*Hochschulrahmengesetz*], the responsible ministry being the Federal Ministry of Education (which has changed its title a few times over the past ten years). As the Federal Government has no regulatory power in the field of higher education, the states need to approve of all changes. In order to facilitate consensus, the Standing Conference of the Ministers of Education and Cultural Affairs [*Kultusministerkonferenz*] (KMK) coordinates their policies (Art. 9.2 Higher Education Act [*Hochschulrahmengesetz*]). Although it has no formal power, its resolutions are normally transferred into administrative action at the level of the states (Witte, 2006, p. 150).

The Bologna Process provided a stimulus for reforms, its goals are summarized as mobility of labour and active participation in the knowledge economy (Matei, 2012, p. 678; Miklavič, 2012, p. 121); for universities the objective is to increase mobility inside and outside Europe, and consequently Europe's competitiveness (De Wit, 2012, p. 431). The Bologna Process is viewed as the most powerful change to higher education since World War II (Ravinet, 2008, pp. 353-354). Similarly (Enders & Westerheijden, 2011, p. 471), it was functionalized for national reform purposes (Miklavič, 2012, p. 128; Ravinet, 2008, pp. 360-363). One expert in Hahn's (2005) case study considers the Bologna Process a 'trojan horse', which changes the national agenda of higher education (p. 25); Reichert (2010) labels the process as a 'catalyst' for national reforms (p. 112).

Following its obligations from the Bologna Agreement (1999), the Federal Government set the framework for reforms of the regulatory framework of Higher Education (Federal Government of Germany [*Bundesregierung*], 2012a, pp. 13-27). By abandoning detailed instructions for governance and organization of universities, it allowed the states to pass the freedoms on to the universities, thus creating a significant increase in freedom at the level of the institution. An evaluation conducted by the *Stifterverband* [Founders' Association] showed that the new law allowed freedoms for universities in these aspects: universities could be run in different legal forms; the cooperation between state and universities will be executed on the basis of negotiated targets (Objective and Performance Agreements [*Ziel- und Leistungsvereinbarungen*]), and further opening clauses are explicitly envisaged; universities are free to generate additional funds and are allowed to shift funds within their budget; they are allowed to found and to purchase stakes in companies; they are free to select their professors, and the position of the rector is strengthened (Donors' Association [*Stifterverband*], 2002, pp. 7-10). Additionally, universities were granted the right to select their students (Blossfeld, 2010, p. 111). As the reforms required in-depth readjustment of governance structures, the role of central leaders was strengthened (Reichert, 2010, pp. 114-115).

One central assumption is that competition creates better quality (Marginson, 1997, p. 7; Olssen & Peters, 2005, p. 328), a reflection being the Excellence Initiative (2005), which marked an important milestone in reforms in German Higher Education. The Initiative was built on the idea of creating outstanding conditions for excellent researchers (Pinkwart, 2012c, p. 24). The prior German approach of creating a high number of good universities instead of a few excellent ones (Hazelkorn, 2012, p. 838) is akin to that of the Ivy League in the United States (Sutin & Jacob, 2016, p. 57).

The Excellence Initiative, originally agreed upon in 2005 between Federal Government and all 16 states, aims at enhancing the international image and visibility of German research, improving international rankings, increasing third-party funding and the appointment of highly reputable international scientists. It has provided additional funds for graduate schools to foster scientific junior researchers, clusters of excellence, and future concepts for project-based cutting-edge university-based research (Federal Government and State Governments of the Federal Republic of Germany [*Bundesregierung und Landesregierungen der Bundesrepublik Deutschland*], Preamble, 2017). At the level of the individual university, the Excellence Initiative has meant additional funds and a significant image boost in public perception (Wehrlin, 2011, pp. 53-54). The Excellence Initiative spent nearly €2 billion in the first two rounds, improved structures for research and enhanced interdisciplinary cooperation, and has made a significant contribution to the internationalization of German universities (Pinkwart, 2012c, pp. 98-99).

2.4.1.1 New public management, the role of state governments and the concept of the entrepreneurial university

In order to translate the ideas of the above-described reforms into concrete structures, the principles of new public management (NPM) were introduced, with the traditional academic freedom – in the perception of academics and students – reduced (Keller, 2004, pp. 903-904). NPM aims at making the public services more efficient and more oriented towards the demands of the people. The concept sheds the assumption that the public administration is generally interested in public welfare. Based on the assumed self-interest of administrations and public institutions, NPM introduces principles and tools of business to the public sector: accountability, responsibility, incentives and competition, and aims at determining ways to motivate agents, align interest between principle and agent and increase efficiency (Hood, 1995, pp. 93-98; Olssen & Peters, 2005, p. 320). In the past, universities have been managed as input-oriented, meaning that only factors of input were taken into account when deciding upon regulation and funding. NPM has become an internationally accepted landmark model [*Leitbild*] for the development of public services. On the managerial level, the model does not provide an entirely theoretical approach: it generally recommends transferring models used in business to the public sector (Bogumil, 2013, p. 20).

As there is no real market for public funding, the concept aims at creating quasi-markets by linking funding to performance indicators (Hoffacker, 2000, pp. 87-94) and thus introducing state-induced competition (Orr, Jaeger, & Schwarzenberger, 2007, p. 297). The model applies the principal agent theory to public institutions, governments acting as principals, and universities as agents (Bogumil, 2013, p. 21). Referring to information economics, the model builds on the observation that the agent disposes of more information than the principal, including that the principal cannot fully monitor actions taken by the agent. The model recommends outcome-based contracts, verification of agent behaviour according to concrete criteria, and clear criteria for the measurements of outcomes (Eisenhardt, 1989, pp. 59-63).

The governance structure of German public universities before the reforms was characterized by the guiding principle as described in the '*Introduction*'. Given the collegial manner of leadership combined with the right to veto, decision-making processes were slow, leadership authority very limited, and the option to set incentives – usual practice in business – largely impossible (Bogumil, 2013, pp. 26-28). Herrmann (2005) points out that the administered and government-controlled university with non-performance oriented funding is not sustainable (p. 10). Pinkwart (2007) adds that key actors in universities and research units should be granted trust, and that they need to be granted freedom from government intervention in order to develop their full potential (p. 260).

The managerial model encompasses the target-oriented control of universities and aims at replacing the control of details by establishing a result-oriented approach, such as with target agreements and formula-based funding. It includes a strengthening of management bodies and aims at strengthening universities as organizations (Bogumil, 2013, pp. 63-64). Enhanced leadership competencies thus create new options for organizational development: the model of the entrepreneurial university (which is presented below) is becoming more accepted, including the strong position of the rector (Moscati, 2012, p. 605).

Competition is central to this approach, differentiated against purely academic competition, in which academics themselves decide upon criteria of competition (Bogumil, 2013, pp. 29-30). The new model includes a number of instruments; with regard to internationalization, the following can be considered impactful: formula-based funding, target agreements, and rankings: Formula-based funding links funding to certain predefined indicators, such as student numbers, graduates, third-party funding or PhD students. Target agreements are to be considered a contract between equals; the instrument delivers maximum flexibility and can be used for qualitative or quantitative targets (Bogumil, 2013, pp. 34-40). In practice, target agreements are used in different ways by different states; In der Smitten and Jaeger (2012) show that the cooperation between governments and universities differs between states in the degree of dependency of funding upon predefined criteria: some states codify principles of university funding in the Higher Education Act, others include these aspects in bilateral contracts between ministries and universities (pp. 39-42). University rankings are to be used to create transparency for achievements of universities in teaching and research.

Consequently, this model is highly relevant to the internationalization of German universities: the recruitment of international students contributes to target achievement, governments may add additional goals of internationalization in Higher Education Acts, and the integration of high-quality international researchers contributes to the target achievement of quality targets.

A comparison of all Higher Education Acts of the 16 states (as presented in Appendix C), as well as the German Higher Education Framework Act (2017) comes to the following conclusion: all German public universities are mandated by law to encourage international cooperation; a respective clause is included in all Higher Education Acts in the states as well as in the German Higher Education Framework Act. Apart from this commonality, the Higher Education Acts differ in their level of detail, the use of target agreements and the clauses on internationalization. The list of codes is included in Appendix C.

One directly observable field of action by state governments is represented by foundation programmes [*Studienkollegs*] preparing international students for undergraduate degree programmes at German universities. As stated above, Higher Education is governed by the 16 states – in the case of entry requirements this matter is taken care of by the Standing Conference of the Ministers of Education and Cultural Affairs through the Anabin Database, which had been created and now includes assessments for 180 countries and more than 25,000 institutions (Standing Conference of the Ministers of Education and Cultural Affairs [*Kultusministerkonferenz*] (KMK), 2017).

The attitude of state government differs substantially: on one extreme, the government grants the right to offer foundation programmes exclusively to public institutions, and on the other extreme, governments do not engage at all in this segment of the market, leading to the emergence of private providers or the recruitment of graduates from foundation programmes in other states.

North Rhine-Westphalia was the first state to abolish state-run foundation programmes. In Brandenburg neither public nor private foundation programmes are offered; the Higher Education Acts of Rhineland-Palatinate and Schleswig-Holstein explicitly restrict authorization for foundation programmes to public providers. Baden-Württemberg, Mecklenburg-Vorpommern, Lower Saxony and Saxony-Anhalt's law places private providers under the reservation of approval; not all of the states' Higher Education Acts contain clauses on foundation programmes (the Higher Education Acts of 16 states is presented in the Appendices).

The rationale behind abolishing foundation programmes run and financed by public institutions was the analysis of student numbers: whereas the number of international students at North Rhine-Westphalian universities more than doubled in ten years, the number of graduates from foundation programmes did not increase. The government decided to use the funds for scholarships (Pinkwart, 2007, September 24). As the following Tables 3 and 4 show, this pattern did not change until 2015: the number of international students in North Rhine-Westphalian universities further increased, as did the number of students participating in foundation programmes (although students had to pay for these programmes). It can thus be remarked that the abolishment of state-funded foundation programmes did not harm the internationalization of North Rhine-Westphalian universities.

Another field of regulation is the question of whether fees may be charged to students or to some group of students: Pinkwart (2007) – in his position as Minister of Education (2005-2010) – allowed universities in North Rhine-Westphalia to charge fees and to use them to enhance quality (pp. 261-262). Herrmann (2015, December 9) shares this view and suggests fees for non-EU students and grants by the federal government to support international students. Two states have followed these suggestions: The Higher Education Act of Saxony allows universities to charge fees to non-EU students if they provide scholarship programmes for these groups of students (Saxon State Government [*Landesregierung Sachsen*], 2013, §12 III), the legislator in Baden-Württemberg pursues a similar path: international students generally pay €1,500 per semester, €300 remain with the university in order to improve study conditions for this group. This change is accompanied by a few exemptions (for example, for exchange students and students from poor countries) and scholarships (Baden-Württemberg State Government [*Landesregierung Baden-Württemberg*], 2017).

Table 3 Role of State Governments and Student Numbers in Foundation Programmes 2015:

	Participants' Foundation Programmes		2010		2015			Ratio of International Students			Source
	2010	2015	No. of Students	Int. Students	No. of students	Int. Students	Student Increase	2010	2015	Providers' Foundation Programmes	
Baden-Württemberg	604	655	148,206	18,699	177,290	23,046	19.62%	12.62%	13.00%	Public	Baden-Württemberg State Parliament [*Landtag Baden-Württemberg*] (2015, January)
Bavaria	397	404	180,746	15,673	234,069	22,839	29.50%	11.53%	11.79%	Public	Free State of Bavaria State Parliament [*Landtages des Freistaates Bayern*] (2015, May)
Berlin	315	408	96,691	14,973	108,744	16,614	12.47%	15.49%	15.28%	Public	Berlin State Government [*Landesregierung Berlin*] (2011, July)
Brandenburg	7	102	33,954	3,784	35,256	4,588	3.83%	11.14%	13.01%	Not offered	Brandenburg State Parliament [*Brandenburgischer Landtag*] (2014, April)
Bremen	0	0	17,355	1,477	18,864	1,389	8.69%	8.51%	7.36%	Not offered	Free City of Bremen State Government [*Landesregierung der Freien und Hansestadt Bremen*] (2007, May)
Hamburg	295	311	42,663	3,908	48,414	4,668	13.48%	9.16%	9.64%	Public	Hamburg State Parliament [Hamburger Bürgerschaft] (2001, July)
Hesse	597	715	126,022	11,439	150,607	12,939	19.51%	9.08%	8.59%	Public	Hesse State Parliament [*Hessischer Landtag*] (2009, December)
Lower Saxony	178	252	102,274	9,087	136,559	10,765	33.52%	8.88%	7.88%	Public	Lower Saxony State Parliament [*Niedersächsischer Landtag*] (2007, February)
Mecklenburg-Vorpommern	155	172	27,492	1,302	24,233	1,264	-11.85%	4.74%	5.22%	Public	Mecklenburg-Vorpommern State Parliament [*Landtag Mecklenburg-Vorpommern*] (2011, November)

	Participants' Foundation Programmes		2010		2015			Ratio of International Students			Source
	2010	2015	No. of Students	Int. Students	No. of students	Int. Students	Student Increase	2010	2015	Providers' Foundation Programmes	
North Rhine-Westphalia	428	527	375,136	30,140	483,419	41,970	28.86%	8.03%	8.68%	Only private, state-approved	North Rhine-Westphalia State Parliament [*Nordrhein-Westfälischer Landtag*] (2014, September)
Rhineland-Palatina	244	146	75,538	5,677	74,881	6,997	-0.87%	7.52%	9.34%	Public	Rhineland-Palatina State Parliament [*Rheinland-Pfälzischer Landtag*] (2010, November)
Saarland	310	256	17,061	2,143	17,359	2,504	1.75%	12.56%	14.42%	Public	Saarland Ministry of Justice [*Justizministerium des Saarlandes*] (2016, November)
Saxony	372	597	75,109	6,235	76,499	9,858	2.82%	7.59%	12.88%	Public and private, state-approved	Saxon State Ministry for Science and Art [*Staatsministerin für Wissenschaft und Kunst*], (2012, October)
Saxony-Anhalt	671	764	32,504	2,496	33,348	3,218	2.60%	7.68%	9.65%	Public	Saxony-Anhalt State Parliament [*Landtag Sachsen Anhalt*] (2010, December)
Schleswig-Holstein	58	78	30,427	1,928	34,421	2,154	13.13%	6.34%	6.26%	Public	Schleswig-Holstein State Parliament [*Landtag Schleswig-Holstein*] (2016, February)
Thuringia	139	193	36,485	2,808	34,186	4,083	-6.30%	7.70%	11.94%	Public	Thuringia State Parliament [Landtag Thüringen] (2016, September)

1 Aulbach, Herfurth, Koch-Gimpel, & Neuhaus (2017); Burkhardt (2011); Burkhardt (2016); German Federal Statistical Office – Statistisches Bundesamt (2016, p. 428); in 2010: German Federal Statistical Office – Statistisches Bundesamt (2011, p. 402).

Table 4 Overview of Positions of State Governments by Analysis of their Website

Baden-Württemberg	Ministry declares internationalization an official target; introduction of fees for Non-EU students (Baden-Württemburg State Ministry of Science, Research and Art [*Ministerium für Wissenschaft, Forschung und Kunst des Landes Baden-Württemberg*], 2017)
Bavaria	International cooperation in science is declared an essential part of education and science, several programmes to facilitate internationalization in research and exchange are offered (Bavarian State Ministry of Education and Culture, Science and Art [*Bayerisches Staatsministerium für Bildung und Kultus, Wissenschaft und Kunst*], 2017)
Berlin	Develop Berlin to a leading location for innovation, enhance international cooperation between universities; City-owned foundation to support third-party funding applications, attract international scientists; create synergies between existing international partnerships (Governing Mayor of Berlin [*Regierender Bürgermeister von Berlin*], 2017, January)
Brandenburg	Universities are expected to actively promote internationality through physical mobility, international research and internationalized curricula; to recruit international students systematically based on internationalization strategies and strategically derived target regions (Brandenburg State Ministry of Science, Research and Culture [*Ministerium für Wissenschaft, Forschung und Kultur, Land Brandenburg*], 2013, pp. 42-43)
Bremen	Internationalization defined as key objective of universities: universities are expected to increase ratio of English-medium courses, to enhance Internationalization at Home and to intensify international networks for exchange of students and researchers. Respective target agreements have been signed (Free Hanseatic City of Bremen Senator of Education and Science [*Senatorin für Bildung und Wissenschaft, Freie Hansestadt Bremen*], 2015, p. 18; p. 45)
Hamburg	No central document found, but both state-run universities have the task of internationalization in their target agreement
Hesse	No central document found; the target agreements of all state-run universities are published and all contain significant and very concrete stipulations on internationalization
Lower Saxony	Internationalization is considered central to institutional profiling of universities, and instruments of quality development; universities are expected to develop their own internationalization strategies, to establish a welcome culture for international students and scientists; to facilitate international student and researcher mobility (Lower Saxony Ministry of Science and Culture [*Niedersächsisches Ministerium für Wissenschaft und Kultur*], 2014, pp. 12-13)
Mecklenburg	Universities are expected to accept the challenge of internationalization and to enhance English-medium courses and double-degree programmes; to systematically recruit international students; to increase the ratio of international scientific staff; to raise third-party funding; to create a welcome culture and integrate international students (Mecklenburg-Vorpommern State Government, 2015, p. 26)

North Rhine-Westphalia	Internationality is considered a key dimensional quality of studies, universities are to facilitate physical mobility by means of exchange and double-degree agreements; universities are to establish a working culture, to increase the number of courses in English medium. Universities are to include digital media to facilitate internationalization (North Rhine-Westphalia State Government [*Landesregierung Nordrhein-Westfalen*], 2016, p. 27, p. 43, p. 48)
Rhineland-Palatina	The ministry summarizes its perspective, programmes and actions on internationalization on its website, including a commitment in favour of international student mobility, international cooperation and international foundation programmes (Rhineland-Palatina State Government, Ministry for Science, Education and Culture [*Landesregierung Rheinland-Pfalz, Ministerium für Wissenschaft, Weiterbildung und Kultur*], 2017)
Saarland	Internationalization is defined as a key task of the university and instrument for profiling; the university is expected to raise third-party funding, to enhance international visibility and to create a welcome culture (Saarland State Government [*Landesregierung des Saarlandes*], 2015, p. 22)
Saxony	Internationalization is defined as an overall objective, universities are defined as places of internationality and expected to execute their specific internationalization strategies; internationalization is to foster overall objectives of universities (Saxon State Ministry for Higher Education, Research and the Arts [*Sächsisches Staatsministerium für Wissenschaft und Kunst*], 2016, pp. 24-25)
Saxony-Anhalt	Universities are expected to continue their internationalization, which is considered a remedy for the demographic challenge, and are to be conducted in particular in areas of shortage of skilled labour, such as subjects of natural sciences. The ministry nominates a number of concrete actions, such as the enhanced offer of courses and complete study programmes in English medium, the increase of international faculty, international joint-degree programmes, the facilitation of student mobility through mutual acceptance and internationally accepted transcripts, as well as the establishment of a welcome culture (Saxony-Anhalt Ministry for Economy and Science [*Ministerium für Wissenschaft und Wirtschaft des Landes Sachsen-Anhalt*], 2015, July 2, pp. 24-25)
Schleswig-Holstein	Internationalization is declared a central task of universities; budgets are to be used to promote internationalization (Schleswig-Holstein State Government [*Landesregierung Schleswig-Holstein*], 2016)
Thuringia	The universities are to increase the ratio of international students, especially those originating from neighbouring and industrialized countries. Strategic internationalization is defined as a cross-sectional task for all units in universities, physical mobility is to be strengthened, administrative barriers to mobility are to be removed, international junior scientists are to be recruited, international research is to be enhanced, and international cooperations are to be intensified (Thuringia State Ministry for Education, Science and Culture [*Ministerium für Bildung, Wissenschaft und Kultur des Freistaates Thüringen*], 2015, pp. 94-95)

Overall impression: it can be remarked that internationalization is undisputed in the ministries, as all ministries of the 16 states have stated their support for internationalization efforts. However, the intensity and the degree of concreteness do differ, as described in the preceding table. Consequently, all German public research universities do face the expectation of their governing bodies to internationalize – with varying levels of support.

The entrepreneurial university. Clark (1998) defines an entrepreneurial university as actively seeking innovation in its tasks, welcoming substantial shifts in organizational character and aspiring to become a significant actor in its field. Thus, institutional entrepreneurship can be considered both process and outcome. The author adds that the terms 'entrepreneurial' and 'innovative' have been used loosely synonymously (p. 4). Kirchgeorg et al. (2016) follow the entrepreneurial perspective in outlining innovation; the dimensions of productivity, tolerance for ambiguity and willingness to take risks are included and contribute to the ability of organizations to recognize fundamental change and to proactively shape it (p. 30).

Pinkwart (2012b) presents the relationship between innovation and entrepreneurship: a culture of the latter produces the former (pp. 13-15) and sets the frame for purpose and underlying principle: innovation is crucial for a country without natural resources (Pinkwart, 2007, pp. 257-258). Casper (2014) underlines the freedom of research and universities from external interferences (pp. 9-11). Pinkwart and Czinkota, and Herrmann refer to Humboldt in demanding freedom for universities dedicated to cutting-edge research, teaching and transfer (as cited in Herrmann, 2005, p. 10; Pinkwart & Czinkota, 2011, June 22).

In this context, Pinkwart (2007) outlines the role of the state in setting the framework conditions, encouraging innovation and trusting in the capabilities of universities – thus removing narrowing bureaucratic barriers to innovation (p. 260). Herrmann (2005) agrees and adds that, worldwide, not one top university is financed exclusively by government, officially regulated, required to accept every applicant, free of charge and offering a permanent position to all professors (p. 11).

Herrmann (2005) adds that the acknowledgement from society of the socioeconomic relevance of research and science, and the identity of universities as scientific companies, are prerequisites for global competitiveness (p. 8). Müller-Böling (2001) defines the scientific character of universities as a service to society in delivering the basis for ideas and products of the future (p. 21); an entrepreneurial university does not aim at success in terms of business – it is committed to science. However, this has to be done on the basis of a clear definition of cost and outcome (Herrmann, 2005, p. 11). Pinkwart (2012b) proclaims that universities should accept responsibility for the applicability of their research and participate in product development (pp. 37-39).

Clark (1998) provides a pathway of transformation towards entrepreneurial universities encompassing five elements that he considers the minimum: studies and steering core and expanded developmental periphery, a diversified funding base, a stimulated academic heartland and integrated entrepreneurial culture (p. 5).

The author defines the **strengthening steering core** as the capacity of the institution to combine managerial capacity with traditional academic values (Clark, 1998, pp. 5-6). Pinkwart and Abu El-Ella (2012) introduce the concept of corporate entrepreneurship (applying the virtues of the entrepreneur at the organizational level), citing Kuratko (2011) and presenting the following criteria: building blocks for corporate entrepreneurship, the creation of an entrepreneurial culture and the achievement of sustainable results (Pinkwart & Abu El-Ella, 2012, p. 14). Translated into categories of management, the entrepreneurial university is defined by four criteria: accountability, targeted definition, implementation of formal structures and professional management. Accountability encompasses standardized procedures to measure quality that universities have set themselves. Target definition demands the creation of a university-specific profile. Formal structures are created by universities in order to deal with highly specialized matters, such as human resources and controlling of organizational development. Professional management marks a limitation of academic self-administration and the creation of academic managers (Maasen & Weingart, 2006, pp. 22-23).

The expanded developmental periphery acknowledges that academic departments cannot deliver everything needed to fulfil the mission of the contemporary university, thus academic centres are to mediate between in- and outside units of the university (Clark, 1998, p. 6). Pinkwart (2012b) considers universities as major players in the innovation process involving business and institutions of government (pp. 13-14).

The diversified funding base is based on the idea that independence requires the 'absence of independence of one single base of support' – and that in a world of public budget constraints, support from government cannot be expected to be a stable source of funding (Clark, 1998, pp. 7-8). Pinkwart and Czinkota (2011, June 22) consider reliable funding a prerequisite of a sustainable university. Pinkwart (2012b) assumes a business case for German universities in facilitating international students remaining in Germany and contributing to filling the gap created by the demographic shift (p. 23).

The stimulated academic heartland emphasizes the relevance of the traditional academic departments. The success of the transformation process is largely determined by the support gained from these units for the combination of managerial and academic values (Clark, 1998, p. 7). In today's environment this creates the case for change: Albach (1999) denotes that universities have to respond to the 'information revolution’ (pp. 23-26). Pinkwart and Czinkota (2012) underscore the imperative for universities to adjust their structures, capabilities and functions (p. 255).

Clark (1998) describes the **integrated entrepreneurial culture** as sets of commonly shared beliefs, essential in cultivating institutional identity and earning a distinctive reputation (pp. 7-8). The idea of the entrepreneurial university, including the strengthened central authorities through new public management concepts, encompasses potential conflicts with traditional culture and self-perception of universities, such as democratic decision-making and structures, and self-administration – where resistance to change is to be expected (Krzywinski, 2014, pp. 87-89). Pinkwart, Abu El-Ella, and Bessant (2014) emphasize the necessity to include sources of resistance in order to lead the process carefully (p. 107). In successfully managed processes, the entrepreneurial culture serves as a facilitator of the process by encouraging agility, creativity and innovation (Kirchgeorg et al., 2016, p. 31).

2.4.1.2 Impact of immigration law and the rights of international students

Government policies on immigration, especially graduates’ right to remain in the country of studies, is considered a factor of high impact in the internationalization of universities (Teichler, 2004, p. 21). The Council of Experts on the Assessment of Economic Development (SVR) [Sachverständigenrat zur Begutachtung der wirtschaftlichern Entwicklung] (2011) has compiled a report on the demographic challenges to the German society and economy. The authors emphasize the huge relevance of demography to the entire society and many aspects of it. Consequences are complex and interrelated, originating in the shift in the age structure of the population. Authors expect a significant negative impact on economic growth and quality of life unless measures to reduce these effects are taken (pp. 1-12). In a country largely devoid of natural resources, entirely dependent upon earning its wealth by production, trade and services, the development of the labour market becomes an aspect of high impact.

Even under the assumption of a net immigration of 100,000 people every year until 2020 (with all other factors of input impact, like labour-force participation rate, the rates and matching of supply and demand, the labour market held constant – a slightly optimistic assumption), the ratio of employable people to the entire population, which stood at 63.4% in 1990 and 60.9% in 2010, is expected to decline to 54.4% in 2030 (Alichniewicz & Geis, 2013, pp. 1-2). As the following Figure 14 shows, McKinsey presents estimates for the shortage of qualified employees, with forecasts ranging from two to four million in 2020 to five million for 2025 and 2030 (Suder, 2011, pp. 12-13).

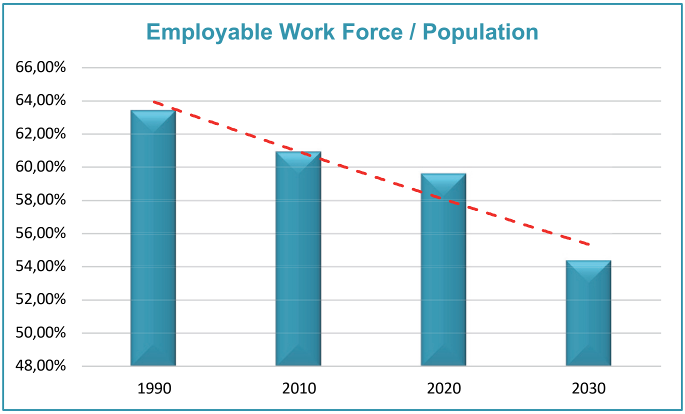

Fig. 14 Development of German workforce against population (from Suder, 2011, pp. 12-13; author's own).

Universities are expected to play a pivotal role in this scenario. As discussed in several contexts of this research, the level of education of the workforce is expected to have a strong impact on productivity and thus growth rates. Immigrant graduates from German universities show significant advantages as compared to other immigrants: their degrees are easier to evaluate than foreign ones, and additionally it can be assumed that studying in Germany makes them familiar with the German administration and working culture, as well as providing substantial knowledge of the German language. As a result, the OECD assumes international graduates to be 'pre-integrated' (OECD, 2013, p. 149), and this type of immigration is largely expected to be channelled through universities (Council of Experts of German Foundations on Integration and Migration [*Sachverständigenrat deutscher Stiftungen für Integration und Migration*], 2015, p. 2).

Academic mobility has largely been interpreted as a temporary exchange of students and academics. The government-funded agency DAAD (German Academic Exchange Service) [*Deutscher Akademischer Austauschdienst*] commits itself to educating future leaders by providing access to the best study and research opportunities, to help developing countries and to stimulate interest in Germany (DAAD, 2017a).

The DAAD acknowledges the intention of a large number of international students to migrate to Germany, as well as the substantial advantages to both the sending and receiving countries. However, the organization largely takes the perspective of development assistance and facilitation of internationalizing systems of higher education. Thus, the provision of highly skilled immigrants to the German economy is not part of the DAAD's mission (DAAD, 2014, pp. 2-3).

From the student's perspective, a majority having the intention to stay in Germany after graduation is reported by a DAAD study. The study assumes that the actual ratio of graduates remaining in Germany amounts to roughly 50% (Burkhardt, 2015, pp. 7-8).

The German Residence Act (2016, §16 IV) allows international graduates of German universities a stay-back option of 18 months upon successful completion of their studies. In this time period, graduates are allowed to search for a job and work without any limit or need for government approval – they are therefore treated equally to domestic applicants (Federal Ministry of Justice and Protection of Consumers [*Bundesministerium für Justiz und Verbraucherschutz*], 2016, October 11). The objective of this legislation is clearly to facilitate not only job-market entry but permanent residence in Germany. International graduates are allowed to apply for a Blue Card after two years of permanent employment. The condition – continuous payment into retirement funds – reveals the underlying aim: to start to stabilize Social Security in Germany in the long run. In order to apply for the Blue Card, applicants need to show a minimum yearly income of €48,400 generally and €37,752 for understaffed professions. The Council of Experts regards this legislation as one of the most liberal worldwide (Council of Experts of German Foundations on Integration and Migration [*Sachverständigenrat deutscher Stiftungen für Integration und Migration*], 2015, pp. 15-16).

Table 5 on the next page provides an overview of existing studies.

Table 5 Overview of Studies on Stay-Back Ratios of International Graduates

Sponsor and Study, (Year of Publication)	Objective	Observed Time Frame	Calculated Stay-back Ratio of International Graduates	
OECD: OECD (2011; 2013)	Comparison of stay-back ratios in OECD countries	2009-2010 2007-2008	22% (2010) 26% (2008)	Third-country graduates to prolong their stay
BAMF: BAMF (2012)	Stay-back of students from third countries	2011	-	Third-country graduates to change type of residence permit: Very useful system, but too early to evaluate; new law went into effect August 1, 2012
DIW: Alichniewicz & Geis (2013)	Meeting demographic challenge through integration of international graduates of German universities	2001-2011	44%	Ratio of all international graduates to stay in Germany / all international graduates
BAMF II: BAMF (2014)	Stay-back of students from third countries	2005-2013	56%	Third-country graduates to change type of residence permit
BAMF III: BAMF (2015)	Stay-back of students from third countries	2005-2014	54%	Third-country graduates to change type of residence permit

Note: OECD = Organisation for Economic Co-operation and Development; BAMF = *Bundesamt für Migration und Flüchtlinge* [Federal Agency for Migration and Refugees]; DIW = *Deutsches Institut für Wirtschaftsforschung* [German Institute for Economic Research]

Thus, the fundamental differences in estimated staying rates between the OECD and the other studies needs to be explained: The OECD (2013) take the group of all graduates abandoning the residence permit for study purposes and divide them into two groups: those who stay and those who leave Germany, the ones staying are set in relation to the group of all graduates abandoning the residence permit to study (pp. 157-160). The Council of Experts of German Foundations on Integration and Migration (2015) attests that this procedure underestimates the actual figure of graduates staying in Germany, as a number of graduates are not included: graduates having applied for a subsequent residence permit while not having received it, graduates in search of a job with a respective residence permit, and graduates no longer needing a residence permit (for example due to marriage to a German citizen) (Council of Experts of German Foundations on Integration and Migration [*Sachverständigenrat deutscher Stiftungen für Integration und Migration*], 2015, pp. 15-18).

In contrast, the Federal Agency of Migration and Refugees (BAMF) considers all graduates who have changed their residence permit or have applied for a residence permit in Germany as remaining in the country (Federal Agency for Migration and Refugees [*Bundesagentur für Migration und Flüchltinge*] (BAMF), 2014, pp. 2-4). The German Institute for Economic Research (DIW) derives its findings from the micro-census, creating a proxy and setting them in relation to figures from the official university statistics, also delivering a rate of above 50% of university graduates staying in Germany (Geis, 2012, pp. 6-9). Thus, these approaches include graduates who stay for reasons other than work, for example marriage to a German citizen.

Glorius (2016) reports on a study conducted by the University of Halle-Wittenberg 2008/2009: Out of 1,392 international students in their first degree studies and 248 PhD programmes, 31 qualitative interviews were conducted – the selection of participants was done by self-assessment, advertisement was done through German-language courses and the website of the international office, hence a variety with regard to gender, age, origin, study programme and subject could be reached (pp. 365-366). The study delivers reasons for the low numbers of students staying in Germany: The University environment for studying and researching is described as supportive and helpful – consequently, a limited stay of two to three years upon graduation seems attractive to participants of the study. Permanent migration to Germany is inhibited by the necessity to learn German and by the German mentality, which is not perceived as very open (pp. 367-369).

Summarizing the existing studies on stay-back of international graduates in Germany, these remarks can be made: Currently available statistics do not permit the capture of the more-or-less exact ratio of international graduates of German universities who stay in the country and join the workforce, as several proxies are involved, as described. Considering all described approaches referred to changes in residence permits, the stay-back ratios of European students cannot be calculated, as they are exempted from the necessity to apply for a residence permit.

Dropout rates of international students differ according to level of studies: Based on data on graduates from the year 2012, Heublein (2014) shows dropout rates for international students (*Bildungsausländer*, as defined in the '*Introduction*') of 41% at Bachelor's and 9% at Master's level (pp. 9-11). Completion rates are not published per university due to data protection law.

However, numbers have to be seen in the larger context and to be put into perspective: the accumulated immigration via universities of those having graduated between 2006 and 2010 amounts to roughly 25,000 people. Compared to the expected shortage of qualified labour by several million, it does not constitute a significant contribution. On the other hand, immigrants through universities represent a significant share of high-impact jobs, such as scientist (5.4%), engineer (5.2%), or software designer (4.8%), as represented by jobs held by immigrants / total number of jobs of this qualification in the German economy (Alichniewicz & Geis, 2013, pp. 14-15).

Compared to the total number of international students in Germany, these numbers seem small. In this context, these aspects need to be taken into account: statistics on students in Germany do not differentiate according to the purpose of the stay in Germany (Teichler, 2012, pp. 485-488); exchange students – generally not having the intention of staying in the country – are fully included. Statistics on graduation of foreign students show that, in 2013, 41,349 non-Germans had graduated from German universities (German Federal Statistical Office, 2014); statistics from the Federal Office of Migration and Refugees (BAMF) show 36,370 foreign students [*Bildungsausländer*] graduated from German universities in 2015, 7,569 of them were granted the right to stay to search for a job (as per 2015, December 31; Federal Ministry of the Interior [Bundesministerium des Innern] (BMI), 2016, pp. 79-80). Glorius (2016) remarks that the potential for international graduates from German universities staying in Germany is far from exhaustive (p. 363). Pinkwart (2012b) suggests that German universities could explore additional sources of income by facilitating their students' stay in Germany upon graduation (p. 23).

2.4.2 Trends in higher education

It is the objective of this section to present the main trends that have had the strongest impact on internationalization. One major trend is not presented here – globalization itself – as it has been outlined and delimited already. The trends presented here encompass the global knowledge economy and the phenomenon of markets in the internationalization of higher education.

2.4.2.1 The knowledge economy and the massification of higher education

The transition from the industrial towards the knowledge economy is essential to the further development of higher education and its internationalization. It is sometimes referred to as a 'knowledge revolution', as it fundamentally changes the basic assumptions of business, economy and society (Burton-Jones, 1999), i.e., it changes the methods of production as well as their relative importance to each other (Gürüz, 2003, p. 6). As universities are key producers of knowledge, it changes their role and their relevance to society, to national economies and to the global economy.

In an economy based on tangible, material goods, the economy provided a good level of stability: companies were able to stay in markets for decades and their employees remained in the same company for long periods of time. Knowledge embodies properties that determine the shape of the modern economy: it can only be produced in human brains and it is always owned by its producers. Depending on the value of the concrete knowledge, owners of knowledge crucial to companies are in strong bargaining positions, whereas employees with little or easily exchangeable knowledge face outsourcing and low-paid, non-permanent positions; their knowledge is bought, when needed (Burton-Jones, 1999). Due to the attribute that knowledge is non-rivalrous and tends to encourage further innovation, the fact that additional usage generally does not mean additional cost creates growth at the level of economies (Powell & Snellman, 2004, p. 200). At the level of the individual organization or business, it creates enormous potential (Rifkin, 2014).

Knowledge is defined as proven (or at least not falsified) information, which has been tested against reality, which delimits knowledge against opinion (Liebeskind, 1996, p. 94). Often, knowledge as a factor of production is associated with industrial processes, facilitating the production of tangible goods, but the definition does not require the involvement of tangible outcomes. Thus, knowledge can be technical know-how, knowledge of markets in order to buy or sell at better prices and with the desired outcomes, the knowledge in leadership – or in any economically valuable field. The OECD (1996) describes these facets with the terms *know-how*, *know-who*, *know-what* and *know-why* (p. 12).

Knowledge appears in the global economy in two forms: it may be tradeable as intellectual property (such as patents, know-how of producing goods or conducting processes) or it is exchanged on an open-source basis. The latter principle has always been key to academia, as the major reward for outstanding research has been seen in the reputation built through citation by colleagues (Marginson, 2009, pp. 64-65).

Knowledge and its quality is central to the wealth of nations, it is traded in the form of services and patent rights and enhances the value of goods (Pinkwart, 2012b, p. 11). This view is shared by the new growth theory, which considers investments in human capital and innovation to be the prime source of economic growth (Romer, 1994, pp. 3-22). Its strong effect is fuelled by the characteristic that knowledge is absent of rivalry and tends to foster further innovation. This theory has been advocated by the OECD (2007) and forms the theoretical base of public investment in higher education (pp. 140-141).

One consequence of this idea is that individuals are 'forced' to invest in their human capital (Lundvall, Rasmussen, & Lorenz, 2008, p. 685). Marginson (2010) states that knowledge is central to success in the knowledge economy (p. 6969). This phenomenon is measured by the 'gross enrolment ratio' (GER), indicating the fraction of the domestic workforce with a university education. For the German economy, this idea is supported by facts about unemployment: the unemployment rate for university graduates is 2.8%, compared to 6.8% for the overall workforce (Federal Employment Agency [*Bundesagentur für Arbeit*], 2016, p. 4). Consequently, higher education has undergone a transformation: attendance of university is more or less obligatory for the vast majority of the population in order to sustain many occupations (Hazelkorn, 2012).

As a result, higher education has become massified: unlike historically, not only a small elite need to be university educated. Quantitative studies show a direct correlation between the ratio of university-educated graduates in the workforce and economic growth. Increasing the proportion of the workforce educated to tertiary level by one per cent is estimated to produce a six per cent growth in GDP (OECD, 2007).

Trow had already described this process in 1973. He subdivided higher education systems into three categories: elite, mass and universal, where elite systems accommodate up to 15% of an age group, mass between 20-30%, and universal above 30%. He argued that higher education was moving towards universal access (Trow, 1973). Measured by his standards, the German system of higher education today is a system of universal higher education, with the figure reaching 55.5% in 2016 (German Federal Statistical Office [*Statistisches Bundesamt*], 2017b). In Germany, as generally in central Europe, higher education was historically a means to educate national elites (Guri-Rosenblit et al., 2007, p. 382).

Pinkwart & Czinkota (2012) proclaim universities' key role in the information revolution, presenting them a complex task of adjusting to the changed environment and of equipping students and society with the abilities and skills to cope with a complex world (p. 259), which has been described as in an 'age of super complexity', and which is intensified in intercultural, international contexts (Hahn, 2004,

p. 301). Whereas, in the past, information was often a scarce resource, it is now available in abundance, with the key task being to filter out relevant information. Consequently, universities face new challenges and are confronted with a new role model: whereas, in the past, the massified university provided society and economy with human resources, universities are now to become 'innovation engines and entrepreneurial hubs', with part of their mission being to transfer knowledge into products and processes (Pinkwart, 2012b, pp. 11-16).

Pinkwart and Abu El-Ella (2012) present the concept of the **triple helix approach,** with universities at the centre of the innovation process of knowledge-based societies, managing the efforts of universities, industries and government. Consequently, a third task besides education and research is added: knowledge creation and transfer (pp. 18-19).

Knowledge being the central component of global competitiveness, the attraction of strong students and scientists is crucial to universities and countries. Wildavsky (2010) speaks of the 'academic global marketplace', in which old patterns erode, and students are increasingly open to new destination countries, as facilitated by many universities (also in non-English speaking countries) offering English-medium programmes (pp. 22-32).

Competition for strong students and scientists takes place in many dimensions, not only within teaching facilities and funding, but also networking opportunities. New media allow them to select the places where they find the best environmental conditions for their work (Pinkwart & Abu El-Ella, 2012, p. 2).

Consequently, the attraction of highly talented students and researchers from the international market has a high impact on economic wealth, growth and employment. In order to serve their purposes in delivering innovation, conducting cross-disciplinary research and connecting to new markets, the 'University of the Future' is only sustainable if research, teaching and transfer are conducted at the highest possible levels (Pinkwart & Czinkota, 2011, June 22).

2.4.2.2 Onlinification of higher education and the impact of technology

Drucker predicted in 1997 that 'big university campuses will be relics', due to strong increase in cost without improvement in quality (Drucker, 1997, October 3). In this context, literature uses the term 'revolution' together with certain aspects of development: Albach (1999) defines information revolution as computer and telecommunication technologies, as well as media in healthcare (p. 18). One consequence is that information – earlier a scarce resource – is now available in abundance, and the challenge is less to obtain it than to process it. The digital revolution is fuelled by the increased capacity of computers to process vast amounts of data and the Internet allowing information to be made available worldwide. Pinkwart (2014a) draws the conclusion that entire business models are challenged as knowledge increases exponentially and individualization becomes possible (pp. 4-7). New technologies have the potential to reduce entry barriers and thus to enhance the target group. Erramilli (1990) has made a similar point for the internationalization of service industries, as new technologies may create new modes of entry into international markets.

Several aspects of universities can be transformed by technology: structure, capabilities, and functions. Technology enables knowledge to be shared worldwide, and creates a network structure that replaces exclusivity with participatory inclusiveness. Consequently, non-hierarchical networks and informal learning are key components of the new era (Pinkwart & Czinkota, 2012, p. 255).

Pinkwart and Czinkota (2012) denote that new technologies reduce transaction costs significantly (p. 259), in the case of online courses, transportation costs are reduced to zero (students do not need to travel to the site of the university, and universities do not need to open campus locations abroad). The German Forum for Higher Education in the Digital Age (HFD) [*Hochschulforum Digitalisierung*] (2016a) describes that digitalization enhances global competition for students through the availability of open online courses (p. 6). Under the condition that universities apply their recognition procedures to online courses, students would be granted the opportunity of 'virtual mobility' – and universities would be confronted with a new level of competition (p. 75).

A key aspect of the digitalization of higher education is represented by the emergence of massive open online courses (MOOCs), which Wulf, Blohm, Leimeister, and Brenner (2014) define by the criteria:

- **M**assiveness, meaning that these courses target large audiences without limit
- **O**penness, in the sense that there are no or very few barriers to participation, as the course is often offered for low or no charge
- **O**nline, describing the digitalization of the process encompassing the delivery of content, social interaction between participants and general academic examination
- **C**ourse, describing that the content delivery follows a clear structure and an examination at the end of the course (Wulf et al., 2014, p. 127)

Oblinger (2012) argues that MOOCs fundamentally change higher education, as they make it possible to deliver content instantly, to interact with learners, and to create communities of learners and professors, thus creating a new learning experience and reducing the cost of higher education significantly (pp. 3-5). Friedman

(2013, January 26) emphasizes new options: students gain the advantage of not having to physically attend university (reducing the cost and opportunity costs of education significantly), while universities face the perspective of low incremental costs (pp. 1-3).

As with any other innovation, it comes with an array of opportunities and threats: Online learning modules create – if properly advertised – international visibility, can be employed for international student recruitment, allow the individualization of learning, create independency of time and place, and thus open universities to new target groups (Schmid & Baessler, 2016, p. 10). Thus, higher education delivered online has the potential to reduce cost significantly – on the side of the university, incremental costs are expected to be low and student opportunity costs will also decrease by not having to physically move to the place of the university (Friedman, 2013, January 26).

On the other hand, top universities may face an opportunity to dominate the world market for education: Bolten, Luckscheiter, Seyfarth, Thrilosen, and Schifferings (2013) express the concern that top international universities offer their online courses worldwide, whereas the vast majority of universities serve merely as remote institutions of certification. The authors suggest that German universities should create an internationally visible profile, participate in international consortia, and emphasize their role as a place to solve complex problems and to deliver an experience of study in the community of scholarship (p. 46).

Do MOOCs matter to the internationalization of German universities? Availability is only a necessary condition for impact – not a sufficient one. Only if coupled with relevant content will new technologies deliver value (Pinkwart & Czinkota, 2012, p. 259). Consequently, the creation of content that is valuable to students worldwide will be the key currency in this market. Additionally, the low cost of German university education for students may serve as a shield against the MOOC-induced change (Michels, Schäfer, Schifferings, Schnabel, & Wagenfeld, 2014, pp. 53-54). Digital examination – so far – hardly exists and would require change in regulations (HFD, 2016b, p. 73).

The German Forum for Higher Education in the Digital Age (HFD) considers the following aspects to be relevant: virtual mobility replacing or complementing physical mobility, informational access to international students in recruitment and teaching, and new options to design international partnerships (HFD, 2016a). Overall, it can be remarked that these technology-introduced changes have the potential to significantly transform higher education – but the full consequences are yet to be seen (Pinkwart, 2012b, p. 11).

2.5 Evaluation of Framework Conditions

Organizational success is strongly influenced by the environment, defined by external forces, conditions, events and relationships; aspects beyond the control of the organization. Consequently, the analysis of the environment is essential to strategic management. It aims at filtering relevant, future-oriented information, which can be used to shape strategies (Rue & Holland, 1989, p. 103).

This section aims at defining and summarizing the key framework conditions of German public research universities and those in key competitor countries. These are defined as the top-five destination countries for internationally mobile students, including the US, the UK, Australia, France, China and Germany. Methodology-wise, no judgment on the weighting of criteria is being made, the results are presented according to the selected criteria, and ranking groups by criterion are presented.

Martinez and Wolverton (2009) suggest the SWOT and the PEST analyses (pp. 15-16). The SWOT analysis is a tool for building strategic thinking on institutional strengths versus weaknesses, as well as external opportunities and threats. It aims at delivering strategies that will match resources and capabilities. Generally it is performed at the level of the individual institution (Jones & Hill, 2013, pp. 18-19). Bryson (2011) considers the analysis particularly useful for non-profit organizations, as they face particular challenges in a world of changing values, such as the legitimacy of their funding and the priorities of society. He sees the benefit of the analysis to organizational awareness, delivering the option to take advantage of the strengths without being harmed by the related weakness or threat (pp. 172-173). Helms and Nixon (2010) show that the tool has been successfully applied to larger entities such as industries or countries (pp. 226-228). Given that organizational strengths and weaknesses differ substantially according to organization, this section focuses on the outside factors beyond the control of the individual university.

Rudzki (1995) suggests the PEST analysis to evaluate key trends in the external environment (p. 423). The PEST concept is defined by political, economic, social and technological forces. Political forces are essential to public universities, as public entities represent owners and regulators at the same time, while university funding reflects societal and political preferences; economic forces represent the overall economic environment impacting on higher education. Social forces encompass attitudes about the value of education and demographic shifts within the population, technological trends enable new forms of delivery and may change the cost structure of higher education (Martinez & Wolverton, 2009, pp. 15-16).

Most authors apply the SWOT analysis to single organizations, thus defining strengths and weaknesses as internal properties of the organization that can be changed by means of management. Opportunities and threats embody aspects beyond the control of the organization (Cadle, Paul, & Turner, 2014, pp. 14-15; Martinez & Wolverton, 2009, pp. 15-16). This research treats the entire group of German public universities as a unit of analysis. Based on Mintzberg et al.'s (2005) list for environmental variables for the SWOT analysis (pp. 29-30), the PEST concept (Rudzki, 1995, p. 423), analysis (Martinez & Wolverton, 2009, pp. 15-16), and the decision-making processes of students and researchers (Bessey, 2012; Maringe, 2006; Ripmeester & Pollock, 2014; Rostan & Höhle, 2014, pp. 86-87), the following SWOT analysis is conducted as indicated in Figure 15, below:

Strengths	Weaknesses
• Study free of charge • International reputation of Germany and German higher education • Regulatory environment	• Limited access to venture-capital for investments in technology • Negative perception of German visa process
Opportunities	**Threats**
• Demographic situation in Germany • International students' working rights during and after studies • Increasing demand for higher education worldwide	• New technologies • Funding situation dependent upon public sources • Fierce international competition, emergence of many small universities

Fig. 15 SWOT analysis (author's own).

Strengths

The absence of study fees represents both a strength and weakness of German universities: given the tendency of international students to assess the ratio of quality and price, the absence of a fee creates a competitive advantage (Ripmeester & Pollock, 2014, p. 7). However, especially in the segment of talented students, this policy does have its downsides: achievement-seeking students generally expect that studying has a price and – due to their talent – part of this is granted to them as a scholarship (Pinkwart, 2014b, p. 37). Germany generally ranks in the top-five study destinations worldwide (Ripmeester & Pollock, 2014, p. 24), including No. 5 in a survey conducted by the UK-based organization, Hobsons (as cited in ICEF Monitor, 2017), and No. 4 in the US News survey (McPhillips, 2017, March 7). The regulatory environment, including enhanced freedom for universities (Pinkwart, 2007, pp. 257-258), the introduction of the managerial model to German universities – facilitating the execution of strategies (Bogumil, 2013, pp. 28-30), as well as the multiple effects of the Excellence Initiative in attracting high-end researchers, providing additional funds and creating international visibility (Pinkwart, 2012c, pp. 97-99) has strongly facilitated the attraction of international students and researchers.

Weaknesses

In the perception of international students, Germany is considered to be the number-three country for the hardest visa process (Ripmeester & Pollock, 2014, p. 30). As outlined in section 2.4.2.2. of this research, technology is expected to have the potential of changing higher education fundamentally (Drucker, 1997, October 3; Pinkwart & Czinkota, 2012, p. 255). A league table of participant numbers in massive open online courses reveals that out of the 50 most popular courses worldwide, 43 are offered by universities from the United States, three from UK universities, two from German universities, one from Australia and one by a Canadian university (Cook, 2017). Consequently, data shows that American universities have far better access to online technologies than German universities.

Threats

Ninety per cent of university funding comes from public sources (HRK, 2017b), and the public system of funding will undergo significant changes from 2019, due to the expiry of the Higher Education Act and the prohibition of net borrowing by the states (HRK, 2017a, p. 3). Pinkwart (2014b) assesses that universities suffer from low basic funding in the present system (p. 36). The German Forum for Higher Education in the Digital Age (HFD) (2016b) expects that digitalization is enhancing global competition for students through the availability of open online courses, particularly through the mutual recognition of credits obtained in online courses (p. 6); thus, German universities face the threat of new entrants to the market.

Opportunities

Demography describes size and structure of population and is shaped by factors of birth, migration, aging and death. Kaufmann (2005) presents the likelihood of slower growth in the future due to aging population and a decline in investment (pp. 90-94). For universities, demography presents threat and opportunity at the same time: unless additional international students are recruited, governments are likely to reduce the capacities of universities (see section 1.1.3 on the capacity management of German governments with regard to universities). On the other hand, this situation presents opportunities for graduates of universities. Under the condition that the German economy largely maintains its growth path, a high number of qualified jobs will become available (Alichniewicz & Geis, 2013, pp. 1-3).

Increasing demand for higher education: The German Council of Science and Humanities [*Wissenschaftsrat*] (WR) (2015) presents the reasons for an increased gross enrolment ratio: the modern knowledge economy requires university education in many positions (pp. 9-15). Internationally, this aspect is accompanied by nations with a large population aged 18-22 (China, India), their growing GDPs, and the ambition of their population to participate in the globalized knowledge economy (British Council, 2012, pp. 34-35).

2.6 Summary, Gaps in Literature and Contribution of this Research

This section aims at summarizing key aspects of the literature review, creating links to the topic, identifying research gaps and defining the contribution of this research. The following aspects have been identified as relevant to the internationalization process of German universities: strategic management, institutionalization, international networks, the role of leadership, internationalization at home, and decision-making processes of students and researchers including derived criteria of choice.

2.6.1 Relevance of strategy for the internationalization process

Pinkwart and Czinkota (2012) outline the field of tension originating from historical role models in universities: internationalization used to be an activity conducted by individual faculty members, whereas today universities are required to include internationalization in their institutional strategy (p. 257). The majority of studies consider strategic alignment of internationalization as self-evident or necessary (Ayoubi & Massoud, 2007; Davies, 1995; Hahn, 2004; Knight & De Wit, 1995; Mazzarol & Soutar, 1999, 2001; Neave, 1992, December 10; Rudzki, 1998, 2000).

However, managing without strategy is a viable option (Inkpen & Choudhury, 1995), with the leaders of each organization having the choice as to whether to craft strategy or not. Consequently, strategy – as perceived by some authors – can be implicit, thus emerging and being incorporated by organizational actions (Mintzberg et al., 2005, pp. 175-230). In the German context, no study could be found to evaluate the impact of an internationalization strategy on the internationalization outcome. Thus, this study evaluates whether the existence of a formal internationalization strategy has an impact on the internationalization behaviour of German universities.

Mission statements are explicitly nominated to be part of the institutional strategy process (Davies, 1995; Hahn, 2004). Ayoubi and Massoud (2007) establish a connection between the content of mission statements and the internationalization process conducted by the organization. This concept is applied by this research to the German context.

The degree of specialization is considered to be a relevant aspect in organizational strategy, with Mazzarol and Soutar (1999, 2001) recommending strategies of differentiation in internationalization.

2.6.2 Relevance of institutionalization

Practices of strategic management in the field of internationalization deal with the challenge of overcoming dependency upon individuals by means of fostering institutionalization (Davies, 1995; Hahn, 2004; Knight & De Wit, 1995; Neave, 1992, December 10; Rudzki, 1998, 2000).

The institutionalizing of internationalization can be done through formal agreements with other partners, such as exchange and double-degree or strategic partnerships – the latter are an integral part of strategic management in the Anglo-Saxon Higher Education Area (Hahn, 2004, pp. 336-337). This research has made the attempt to record strategic partnerships of German universities. Results showed that there is no generally accepted definition of this term, some universities considering every partnership to be strategic, others being highly selective and reporting only low numbers. Consequently, this aspect represents an implication for further research to deliver a generally accepted definition for this instrument and to conduct research accordingly. This research evaluates the relationship between the number of formal agreements for exchange and double-degree, and the increase in international students and researchers.

2.6.3 Impact of structure

Management theory has evaluated the link between strategy and structure. The theoretical grounding for the interrelation of strategy and structure was laid by the historian, Chandler (1972), who empirically examined the historical interrelation between strategy and structure before the early ‘60s. He found empirical evidence that structure tends to follow strategy. However, often not in the intended manner: new strategies created new administrative problems, creating a decline in profitability that encouraged new structures. As a result, a shift in strategy was followed by new structures – including a learning loop.

The international, non-German literature recommends the implementation of organizational units to facilitate internationalization, such as a vice chancellor appointed specifically for the coordination of international activities (Chan, 2004, p. 40); Ayoubi (2013) adds to this the establishment of an international committee, the appointment of academic advisors and a coordinating role of the international offices (p. 225). This research evaluates the interplay of internationalization behaviour and the respective structures: as the interpretation of the competencies of international offices differ by state and university, additional structures do not necessarily have a positive impact on the internationalization. The appointment of vice presidents of internationalization similarly does not necessarily provide additional impulses: a rector or president dedicated to internationalization is likely to be the more effective advocate of internationalization due to longer tenure and hierarchical authority. Consequently, the impact of organizational units on the internationalization outcome is not evaluated by this research and represents an implication for further research.

2.6.4 Relevance of leadership

A number of studies state that leadership has a potential impact on the internationalization behaviour of universities (Mazzarol & Soutar, 1999, 2001; Neave, 1992, December 10; Rudzki, 1998, 2000). The additional question arises as to how decisions and actions of leaders can be predicted by observable criteria. Mazzarol and Soutar (2001), and Johanson and Vahlne (1977) suggest expertise in international markets as a predictor of internationalization behaviour. In the German environment, no study can be found that links the international experience of leaders to the internationalization behaviour of universities. Existing theory on leaders' properties and their links to organizational actions and decisions is explored in the next chapter.

2.6.5 Internationalization at home

The internationalization of the curriculum, also defined as 'Internationalization at Home', is advocated by several authors presented in this section (Hahn, 2004; Knight & De Wit, 1995; Van der Wende, 1996), and it encompasses all activities undertaken in the university's home context, which can include redevelopment of curricula, internationalizing teaching by the inclusion of international faculty, or teaching in foreign languages and benchmarking against international standards (Foskett, 2010, p. 40). Reflecting additional opportunities provided by new technologies, Internationalization at Home can be enhanced by the inclusion of 'virtual internationalization' (HFD, 2016a, p. 76); the relevance of this type of internationalization is largely undisputed and is emphasized by several authors: Hahn (2005) nominated Internationalization at Home (IaH) as a 'new strand of strategy' (p. 36); Kehm & Teichler (2007) underscore its increased relevance (p. 265); Mukherjee (2015) underlines the relevance of Internationalization at Home, as it enables an international study experience for students not going abroad (p. 7).

However, its measurement is facing some significant challenges: given the generally positive attitude towards internationalization, universities do have an incentive to title programmes with the attribute 'international'. The verification of the content being related to two internationally relevant letters requires an in-depth analysis of individual study programmes and represents an implication for further research. The Monopolies Commission denotes that it is hardly possible to judge the content of university study programmes (Monopolies Commission [*Monopolkommission*], 2000, p. 58), thus, the fact that the programme has the attribute 'international' in its title does not reveal its internationally relevant reference and content.

Teaching in a foreign language represents another aspect of Internationalization at Home. Literature proclaims English as the *lingua franca* of academia and assesses an improved competitive position of English-medium programmes (Altbach, 2013, pp. 3-4; Herrmann, 2005, p. 14; Teichler, 2007, pp. 71-72). The DAAD hosts the database of study programmes offered by German universities, which displays 1,379 programmes taught entirely in the English medium (DAAD, 2017a). Despite the relevance of teaching in foreign languages, data of students enrolled in these programmes are not available: this research made the attempt to deliver data of students taught in the English medium, but the response rate for this question was too low to deliver valuable data. Consequently, recording and processing of English-medium programmes in the student population represents an additional implication for further research.

2.6.6 Relevance of external validation

Mazzarol and Soutar (1999, 2001) suggest that external validation, represented by international rankings, is essential to the decision-making process of international students, building on the exclamations on information economics in general, and rankings in particular, in the context of higher education. Although experts agree on the significant relevance of international rankings in decision-making processes of international students and researchers (Kehm & Teichler, 2007, p. 265; Federkeil, 2013; Kehm & Stensaker, 2009), Sutin and Jacob (2016) denote a 'hypersensitivity' on ranking performance (pp. 22-23), and no study could be found that relates positioning of German universities in international rankings to the development of international students and researchers.

2.6.7 Relevance of decision-making process of students and researchers

Mazzarol and Soutar (1999, 2001) underscore that international students or researchers joining a German university is a consequence of their individual decision to do so. In order to explain this to the internationalization outcomes, the analysis of decision-making processes of these target groups is considered helpful (2001, pp. 134-136). This research applies the concept of the decision-making process on the German environment by using expected preferences derived from literature.

2.6.8 Research gap

The research gap was identified in two dimensions: no existing study could be found to evaluate the impact of strategic management on the internationalization of German universities on a quantitative basis; a similar study was conducted by Ayoubi and Massoud (2007) on UK universities (pp. 329-349); Hahn (2005) conducted case study research on a selected number of German universities (pp. 19-38).

Additionally, the aspect of leadership of German universities is under-researched. Although for the United States, literature evaluating the impact of leaders does exist (Fisher, Tack, & Wheeler, 1988), no such study could be found for the German environment. In order to contribute to filling this gap, this research conducts a quantitative analysis of the impact of strategic management on the internationalization process of German universities in the next chapter, and conducts interviews with leaders of key universities in Germany, based on the Leipzig leadership model.

Table 6, on the following page, provides an overview on strategy models for the internationalization of universities as well as the integration of the presented models into this research.

Table 6 Overview of Strategy Models on University Internationalization

Study	Aspect	Research Gap	Representation in this Research
Davies (1995)	• Relevance of strategy and university mission • Relevance of internationalization skills, international experience, courses in foreign languages • Degree of alignment of internationalization efforts	• Quantitative measurement of internationalization strategy and university mission impact • Quantitative measurement of international networks' effects	• Quantitative evaluation Chapter 2.3.1
Knight and De Wit (1995)	• Relevance of organizational strategy • Creation of 'supportive culture' for internationalization • Relevance of strategy to internationalization	• Measurable impact of strategy • Qualitative study among leaders on leadership style • Properties of successful rectors • Quantitative evaluation: Does strategy matter?	• Interviews and • Quantitative evaluation Chapters 2.3.2 and 5
Van der Wende (1996)	• Internationalization of curriculum	• Elements of Internationalization at Home in German universities	• Quantitative evaluation and • Interviews Chapters 2.3.3 and 5
Neave (1992)	• Application of strategic management as organizational decision • Leadership- vs. base unit-driven internationalization	• Rationale of leaders • Quantitative measurement of international networks' effects • Qualitative evaluation on selection process of international partners	• Quantitative evaluation and • Interviews Chapters 2.3.4 and 5
Rudzki (1998, 2000)	• Process-oriented, management-oriented approach	• Role of senior management in internationalization of German universities	• Interviews Chapter 5
Mazzarol and Soutar (1999, 2001)	• Organizational expertise • Relevance of perceived quality • Information technology	• Properties of leaders, international faculty • Impact of rankings on German institutions • Impact of technology	• Quantitative evaluation and • Interviews Chapters 2.3.6 and 5
Ayoubi and Massoud (2007)	• Correlation between strategy and internationalization outcome • Definition of target variable • Structures to facilitate internationalization	• Application to the German context	• Quantitative evaluation Chapter 2.3.7
Hahn (2004)	• Strategy-process through vision, mission, strategy and targets • Impact of technology	• Measurable impact of mission • Application of strategic management by leaders	• Quantitative evaluation and • Interviews Chapters 2.3.8 and 5

3 Exploring the Impact of Influencing Factors on Internationalization, Using Quantitative Methods

After exploring existing theories on internationalization of universities in general, and of German universities in particular, this chapter aims to quantitatively capture supporting and inhibiting factors, and is followed by the views of leaders in the next chapter.

3.1 Research Goal

This part aims at capturing the key drivers of internationalization of German universities with regard to the internationalization of the student body and international scientific staff. In order to do so, hypotheses are derived from literature of different fields, including theories on the internationalization of universities as well as on management theory. Ideally, a quantitative model emerges that delivers quantitatively measurable correlations between factors of impact and the defined outcome. The results serve as a starting point for the qualitative part of this research, which aims at refining findings from the quantitative part, especially encapsulating the impact of leadership. For triangulation purposes, this research starts with a quantitative analysis of the internationalization behaviour and strategy of German universities, then proceeds with a qualitative analysis of interviews with leaders of universities.

Given that the internationalization behaviour of German universities can largely be described and measured quantitatively, this research starts by positing hypotheses, then measures internationalization outcomes. To bolster the official statistics, a survey was conducted among all public German research universities. Consequently, this research design produces objective, generalizable results. First, hypotheses are derived from literature, in the next step methodology is described, then hypotheses are tested against data; findings as well as limitations of the approach are presented.

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3.2 Definition of Key Factors of Influence and Derivation of Hypotheses

This section derives key factors of influence from literature on strategic management, internationalization and higher education. The factors are divided into the categories of strategy, leadership, environment, external validation, institutionalization and self-reinforcement.

3.2.1 Strategy impact

This section covers aspects in control of the university's leadership and encompasses typical tools of strategic management, such as the choice to craft a formal internationalization strategy, the choice to publish a mission statement – and which particular relevance internationalization is given in this statement, the organizational structure and international partnerships at all levels. The underlying assumption is that senior management has a significant impact on the internationalization trajectory of its organization.

3.2.1.1 Formal internationalization strategy

As discussed in the previous chapter, theory affirms that universities can craft strategies and should do so. It appears to be an implicit assumption of nearly all papers that strategy is to be codified in order to have an impact on the organization; Nag, Hambrick, and Chen (2007) assess a 'general implicit consensus' on the essence of strategic management (p. 936). A few authors, like Mintzberg et al. (2005), and Inkpen and Choudhury (1995), discuss the option of non-codified strategy. Rudzki (1995) differentiates between normative and descriptive approaches to strategic management, the first using tools of strategic management in order to craft strategy, the latter being defined as patterns of decisions (p. 422). This section aims at capturing the impacts of formalized, normative internationalization strategies. Twelve years back, literature assessed that strategy was not common in German universities (Hahn, 2005, p. 26).

Strategies deliver a number of benefits, such as the inclusion of relevant information, assessing strengths and weaknesses, preparing for opportunities and threats, and crafting an organizational plan to align resources (Martinez & Wolverton, 2009, pp. 3-9). Additionally, strategies balance out universities' obligations towards different stakeholders (Foskett, 2010, pp. 36-37). Under the assumption that strategies deliver the intended results, the question emerges as to when these results can be observed and measured. Theories on the time lags describe the fact that a chosen strategy needs time to deliver results (Piekenbrock, 2009, p. 257). As no similar studies in the German environment could be found, the following assumptions are made: a time frame of a minimum of three years delivers measurable results, which is in line with Rue and Holland's (1989) assessment of a three- to five-year timeframe for strategic management (p. 9). Thus, the assessment that a university having had an internationalization strategy in place since 2012 would mean that the strategy would have had a *minimum* of three years to deliver results in 2015.

Therefore, the following hypothesis is derived:

Hypothesis 1: It is expected that the existence of a formal internationalization strategy in 2012 has a positive impact on the change of ratio of both international students and international scientific staff.

3.2.1.2 Mission statements

Mission statements are considered a means of strategic management (Hungenberg, 2014, pp. 420-424) and are defined as an 'institution's reason for being' (Sutin & Jacob, 2016, p. 159). The relevance of mission statements has been emphasized by Drucker and Maciariello (1973/2008): Organizations need to define their purpose in order to align resources and provide guidelines for employees (pp. 74-75), to which Drucker (2005) added the high relevance of missions to non-profit-organizations, and the need to specify their missions and to attract employees of compatible values (pp. 3-6). Ulrich and Fluri (1995) add to this the aspects of informing new employees and of public relations (p. 93).

The overview of definitions provided by literature recommends an enhanced clarity in mission statements of universities: Morrill (2010) asserts the need for answers to very specific questions to be delivered by mission statements, such as the specific description of organizational competencies (pp. 137–139). Bryson (2011) agrees that non-profit institutions should generally deliver enhanced clarity in their missions (pp. 138-143), while Davis, Ruhe, Lee, and Rajadhyaksha (2007) require that university mission statements develop the competitive position and present the university purpose, direction, means, as well as values, philosophy and core competence (p. 101). At the normative level, Hanft (2000) emphasizes the role of mission statements in providing orientation and direction (pp. 121-124).

At the conceptual basis, multiple benefits are presented in literature, postulating that mission statements:

- **Are viewed as vehicles of strategy,** as they create the need to engage in a process of exploring external opportunities and to match them with the organization's profile – with this process considered to be beneficial (Bartkus, Glassman, &

McAfee, 2000, p. 24), and to serve as the starting points of strategic initiatives (Desmidt, Prinzie, & Decramer, 2011, p. 469), as well as a guide for both long-term projects' daily decisions (Bartkus et al., 2000, p. 24) and for budgetary decisions (Martinez & Wolverton, 2009, p. 14)
- **Communicate to all stakeholders:** A number of authors claim that mission statements communicate the key values to stakeholders (Leuthesser & Kohli, 1997, p. 59). As a function of mission, Henze (2008) adds the aspect of reduction of complexity (p. 8). Thus, the mission is to convince stakeholders to align their actions accordingly (King & Cleland, 1978), with Bartkus et al. translating this into 'inspiration and motivation of employees' (Bartkus et al., 2000, p. 24; Baetz & Kenneth, 1998, p. 827). Cardona and Rey (2008) declare 'management by missions (MBM)' as a new system of management, elevating the 'management by objectives (MBO)' to a higher level, leaving more room for employees to reach the full potential of the institution (p. 139). Pertaining to the benefits of the mission statement, a similar approach is taken by Pascarella and Frohman (1989), who proclaim the 'purpose-driven organization' (pp. 28-32); Hinterhuber (2015) adds that convincing missions attract motivated employees (pp. 86-87)
- **Facilitate resource allocation according to the institution's goals:** By taking the perspective of the prosperity of the entire institution, mission statements can provide guidelines for resource allocation (Desmidt et al., 2011, p. 469; Baetz & Kenneth, 1998, p. 827; Bartkus et al., 2000, p. 24)
- **Deliver common ground for the organization** of work aligning to the common purpose (King & Cleland, 1978). A 'sense of mission' provides coordination for all employees along the common goals; Henze (2008) adds that mission statements provide employees with meaning for their actions (p. 96), Belzer (1995) adds that meaning is often needed for the execution of strategic change (pp. 18-19)

Lockwood and Davies (1985) ask the rhetorical question as to why university mission statements need to be codified at all, since the mission of universities is well-known: search for truth, discover, store and disseminate knowledge, be critics of society. Answering the question, they present different ways of shaping the individual university (p. 61).

In this context, it needs to be taken into account that governments limit the freedom of German public universities and thus not all options are available (Kohmann, 2012, p. 76), since the missions of universities – at a general level – are codified in the Higher Education Act (Federal Ministry of Justice and Protection of Consumers [*Bundesministerium für Justiz und Verbraucherschutz*], 1976/2017, § 2). A specific need for German public universities has emerged through the reforms in the 1990s and early 2000s, replacing equality with competition: The new public management (NPM) approach, including the implementation of markets and quasi-markets, transforms universities into institutions more comparable to other entities and companies, with the university having become a managerial institution (Kosmützky, 2010, pp. 13-14); mission statements have been increasingly considered an instrument of leadership and organizational development (Giesel, 2007, pp. 82-83).

Given the widespread consensus on the value of missions, there is hardly any criticism on the conceptual level; Inkpen and Choudhury (1995) describe the process of developing a mission statement as time-consuming – and the absence of the mission statement can be considered a focus on the tasks of the organization (pp. 317-318). However, no hard evidence can be found that mission statements have a measurable positive effect on organizations.

Criticism against existing mission statements refers to different aspects: Mission statements can have a counterproductive effect:

- if they bind the organization to the *status quo* and thus hinder it from seizing new opportunities (Bleicher, 1994, p. 22) – Inkpen and Choudhury (1995) thus emphasize that the absence of mission can be described as constructive ambiguity, leaving all options open to organizational actions and not binding the organization to a narrow mission (p. 318)
- if they lack clarity and do not provide any sense of direction. Thompson and Strickland (1999) argue that generic statements may have PR value – but do not entail managerially useful information (p. 29). For the same reason, Hinterhuber (2015) declares a 'sense of reality' as a prerequisite of success (pp. 159-160). Ulrich and Fluri (1995) agree and add the open discussion on conflicting targets (p. 93)
- if they do not correspond with reality (Bartkus et al., 2000, p. 25) and constitute an unrealistic mission, often due to the fact that mission statements largely remain unchanged over a significant period of time (Bart, 1997, p. 13). Bleicher (1994) remarks that mission statements often contain an amount of incredible and empty formulas (p. 22). Hanft (2000) criticizes another level of incompatibility: university leadership rarely has the power to enforce the execution of formal decisions or of the general mission. A declaration of values and intentions not enforced or supported by concrete actions further diminishes the perceived authority of the mission (pp. 126-129)
- if they replace investment by mission (Bartkus et al., 2000, p. 25), thus abusing the mission statement as a tool of marketing instead of using it as a tool of strategic management (Shattock, 2010, p. 8). Similarly, the German literature criticizes the habit of organizations of abusing mission statements for public relations purposes (Giesel, 2007, p. 83)

The mission statement is located within the framework of top management of the organization, relating to strategy and vision, thus missions are an additional reflection of an organization's approach (Müller-Böling & Krasny, 1998, p. 21). Given the widely acknowledged attribute of German Higher Education as being very participative in its governance, the mission statements – if they contain concrete directions – are expected to deliver a good proxy for the internationalization process: Mission statements of non-profit organizations such as universities serve to attract people with compatible values (Drucker, 2005, pp. 36), and are an expression of organizational leadership (Giesel, 2007, pp. 82-83).

Therefore, the following hypothesis is derived:

Hypothesis 2: The ratio between content related to internationalization and to overall mission statement is expected to correlate positively with the development ratio of both international students and international scientific staff.

3.2.1.3 Size and degree of specialization

Business theory considers size a major factor of impact for the internationalization behaviour of organizations, for three reasons. Firstly, **resources needed for internationalization:** Dunning (1980) expects size to be positively correlated to international activities, as dealing with international markets requires a large amount of resources that are typically available to a lesser extent in small organizations (pp. 10-13). Secondly, **management attitude towards internationalization:** Calof (1994) expects small organizations to be more risk-averse than larger ones, due to lack of information and the relative impact of potential failure in international markets (p. 368). Javalgi et al. (2003) – in their study on the internationalization behavior of service firms – suggest that management's attitude towards internationalization service is a good predictor of internationalization activities (p. 196). Thirdly, **growth life cycle:** Bonaccorsi (1992) expects organizations to serve domestic markets first, before engaging in international activities (p. 612).

Does a university's size matter in regard to its internationalization process? Big universities have the resources to set up their own facilities abroad in order to foster their internationalization processes. On the other hand, new media present opportunities for all universities to present themselves to an international audience at limited cost (HFD, 2016b, pp. 84-90). So far, however, internationally visible virtual offers endorsed by leading platforms have been launched by big universities (Cook, 2017), such as the Technical University of Munich (TUM) [*Technische Universität München*] in the Coursera network (Coursera, 2017). Networks represent another option for offsetting limited size (Beerkens, 2002, pp. 297-299). Existing networks of German universities – such as the network of the University Alliance Ruhr [*Universitätsallianz Ruhr*] (UA Ruhr) (2015), or the network of TU9 German Institutes of Technology (2017) – exclude small universities, with the smallest university of both networks serving more than 18,000 students (M = 21.643), as presented in section 4.1. Additionally, rankings play a pivotal role in international higher education: as is shown in the section on rankings, big universities have a significant advantage in these competitions (Marginson & Van der Wende, 2006, p. 311); the same applies for the German Excellence Initiative, which has not been awarded to any small university (DER SPIEGEL, 2016, March 29). Overall, it can be assumed that big universities have an advantage in their internationalization process.

The **management attitude towards internationalization** is considered to have a major impact on its trajectory, and is discussed in this research under section 3.2.3. in the context of the expected correlation between leaders' properties and their actions and decisions, and of the theory based on Collins and Hansen (2011), and Pinkwart and Proksch (2013). However, it is to be discussed whether Calof's (1994) assumption that management teams of big institutions are more likely to engage in internationalization than their counterparts in smaller organizations (p. 368) holds in the context of higher education. By definition and essence, universities are considered international (Teichler, 2007, p. 53), which may imply a generally positive attitude towards internationalization.

The concept of the **growth cycle** as applied to German Higher Education (Bonaccorsi, 1992, p. 612) can be interpreted in the context of the demographic situation of the country: German universities have captured larger shares of the German market by enhancing the ratio of age cohorts attending universities (gross enrolment ratio) and they are now pursuing growth in international markets to contribute to solutions to the demographic challenges of their own organizations and of the country (see expectations of the state governments in section 2.4.1.2.). Following this line of argument, the concept of the growth cycle strengthens the case for internationalization for all German universities.

Under the condition that size is considered a relevant criterion, how should size be measured? In the case of universities, student numbers, budgets, number of employees or faculty members could be discussed. This research follows the categorization of the *Stifterverband* [Donors' Association for the Promotion of Humanities and Sciences], using student numbers (Donors' Association [*Stifterverband*], 2013).

On the other hand, small universities may offset this disadvantage, for example by use of strategies, one option being specialization: Theory of business and economics has produced several arguments in favour of specialization. Romer (1987) considers specialization an accumulation of human capital in a narrow field of limited competition – thus delivering superior returns. In business theory, specialist strategies are aimed at targeting a limited scope or segment of the market, delivering additional value through uniqueness of expertise and specialized customer services (Thompson & Strickland, 1999, p. 203).

This can be interpreted as Porter's (2004) generic strategy of focus, defined by deliberately refraining from serving the entire market and instead focusing on a segment (pp. 38–40). Bonaccorsi (1992) expects organizations to pursue international business when domestic markets become too small (pp. 608-610), an outcome quite likely to occur for highly specialized institutions with a limited target group within the domestic audience. Simon (2007) has created the title *Hidden Champions of the Twenty-First Century: The Success Strategies of Unknown World Market Leaders*, suggesting that some medium-size companies have a large market share in a small global market (pp. 69-74).

Therefore, the following hypotheses are derived:

Hypothesis 3: University size correlates positively with the growth in ratio of both international students and international researchers.

Hypothesis 4: Degree of specialization correlates positively with the growth in ratio of both international faculty and international students.

3.2.2 Impact of institutionalization

Given the high impact of personal interaction on internationalization (Pinkwart & Czinkota, 2012, p. 257), institutionalization of the process is of particular relevance.

3.2.2.1 Internationality of faculty and scientific staff

Bedenlier and Zawacki-Richter (2015) conducted an expert survey among editors and members of the editorial advisory boards of journals in the field of higher education. The study has found major impacts on faculty members resulting from the internationalization of higher education, at the personal, institutional and global levels (pp. 185-191). Given the context of this section, describing the institutionalization involved in the internationalization process, the institutional level is further discussed here.

Their research has found the following key implications of internationalization: the presence of an international student body implies the necessity for rethinking of teaching styles and for culturally sensitive behaviour towards these students; universities are confronted with the expectation of internationalizing their curricula both for domestic and international students; economic aspects encompass the raising of third-party funding; given the increasingly international orientation of research, international research teams and publications are required; international visibility can be enhanced by international research teams (Bedenlier & Zawacki-Richter, 2015, p. 192).

Childress (2010) shows that faculty can deliver significant impulses for the internationalization of curriculum (teaching based on the 'international mindset') by investing their specific knowledge, skills and attitude. Additionally, given the need for personal contacts within the internationalization process, faculty can deliver significant impulse in this aspect (pp. 26-34; pp. 149-150). International scholars are likely to bring significant international networks, which can be employed to the advantage of the institution. These aspects lead to Stohl's (2007) assertion that 'if we want to internationalize the university, we have to internationalize faculty' (p. 367). Taylor (2004) emphasizes the organizational skill-set: internationalization – being a complex process – requires the organization to integrate additional competencies and skills in order to deal with the process. One option for doing so is to hire international scientific staff (pp. 162-163).

International faculty represents an attractive element of Internationalization at Home, as it inserts international elements into the curriculum; it quasi-invites international ways of research and teaching into the university without the need for the physical mobility of students and faculty (Foskett, 2012, pp. 39-41). Internationalization is largely built upon personal and organizational networks (Zucchella, Palamara, & Denicolai, 2007, p. 270). Despite the acknowledged relevance of international faculty, literature acknowledges a significant research gap in this field (Bedenlier & Zawacki-Richter, 2015, p. 187).

Consequently, international faculty can be considered an end in itself, as faculty from other countries increase the international dimension and contribute to the overall goal of internationalization. This perspective is captured in this paper's research by considering the ratio of international faculty to be one target variable in the quantitative analysis.

Additionally, international scientific staff deliver multiple benefits, especially for international students, such as integrating the international perspective, openness to foreign cultures and as the role model for international careers.

Therefore, the following Hypothesis 5 is derived:

Hypothesis 5: The ratio of international scientific staff correlates positively to an increase in the ratio of international students.

3.2.2.2 International partnerships

Beerkens (2002) notes that networks, partnerships and consortia are often used interchangeably and as synonyms (p. 297). Literature denotes that networks are common in the academic world and that their relevance has increased (Obamba & Mwema, 2009, p. 352; Stockley & De Wit, 2011, p. 45). Van der Wende (1999) assesses that partnerships are the most common form of internationalization in European Higher Education, facilitated by programmes like ERASMUS (European Region Action Scheme for the Mobility of University Students) and SOCRATES (p. 6). Stockley and De Wit (2011) remark that universities are quasi-forced to cooperate by global competition – and that cooperation delivers opportunities unavailable without it (p. 45).

Ayoubi (2013) remarks that few studies of partnerships in business were published in the early '80s, and that studies on university partnerships were largely unavailable until the late '90s (p. 220). Historically, theory considered loose forms of cooperation to be unstable and thus not useful for business (Williamson, 1987). All types of cooperations incorporate less control than does the inclusion of activities into the organization – advantages and disadvantages of these properties are discussed in the context of network theory, university network being defined as a multi-university cooperation, a plurality of alliances (Doz & Hamel, 1998, pp. 30-31).

The motivation to engage in cooperations and partnerships includes aspects of learning, reduction of competition, building relationship capital and jointly entering new markets. By nature, universities are networked through academic networks. De Wit (2010) argues that the current challenge is to employ these networks for the improvement of universities, in an effort to adapt to the environment (p. 4). Given the focus of this research on physical mobility, only the following partnerships are covered: exchange partnerships, double-degree agreements, and strategic partnerships as per definition of the university.

Literature has developed the network paradigm, proclaiming to turn the apparent weakness of networks (less control) into organizational strengths: managing networks. There is a broad consensus in literature that today's environment demands quick decisions and adjustments, and that traditional organizations often cannot deliver this factor (Powell, 1987, pp. 78-81). Literature assesses that networks have the potential to provide the flexibility needed – and provide an opportunity for organizational learning from the network partner (Cravens, Shipp, & Cravens, 1994, pp. 20-21; Hamel, Doz, & Prahalad, 1989, p. 134). In these processes, the organization has the opportunity to develop the skill to manage networks – thus offsetting the disadvantage of limited control (Gomes-Casseres, 1996, pp. 206-208).

Applied to market entry, networks have the potential to deliver faster and more efficient processes (Blankenburg, 2013, pp. 375-377), whereas traditional approaches to internationalization may overstretch resources: whereas in hierarchical organizations knowledge seldom flows downward, networks – by creating non-hierarchical, reciprocal relationships based on trust – enhance the flow of information, which is essential to science (Latham, 2001, pp. 14-15). Kilduff and Brass (2010) apply social network theory to institutions and show that heterogeneous networks facilitate the flow of information highly relevant to science (pp. 329-331). Consequently, network structures, defined as the overall pattern of relationships, enable access to information as their common currency (Axelsson & Easton, 1992, p. 12), and the finding of partners for new ventures, etc. (Zaheer, Gulati, & Nohria, 2000, p. 205).

With regard to competition, literature presents different views: Strategic cooperation is a means to replace competition with cooperation, or at the minimum to add cooperation to the relationship (Lorange & Roos, 1993, p. 1), versus the view that the emergence of cooperations changes the shape of competition without eliminating it – and that the competition takes place between the alliances (Gomes-Casseres, 1996, pp. 2-3; pp. 71-72). Another benefit provided by cooperation is in the 'relationship capital' built through cooperations: The experience of individuals within the cooperation, the joint decision-making beyond formal structures, the perceived fairness of the cooperation – the 'overall understanding of cooperation' (Gomes-Casseres, 1996, pp. 85-87).

One aspect of networks (as a synonym for alliances or cooperations) is taken into account: they may not all have been set up on purpose with the intention of benefiting the institution – they may have emerged (Torkkeli, Saarenketo, & Nummela, 2015, p. 459). This aspect is evaluated in the qualitative approach in the interviews.

Literature offers different kinds of typologies for cooperations. Although internationalization generally starts with a person-to-person approach – and these, often informal, links between academics are still considered to be the most important means of international cooperation – this paper follows Beerkens' (2002) approach of focusing on inter-organizational, international cooperations that are formalized, in the sense that an agreement between institutions exists (pp. 297-298), and the definition provided by Saffu and Mamman (2000) of including joint activities at the institutional level between international partners p. 45).

Barnett and Jacobson (2010) offer a typology according to the initiator:

- Faculty-driven partnerships may be initiated by one chair, which generally involve an exchange on shared topics
- University-sponsored partnerships, which generally involve exchange at several levels, such as faculty, staff and student exchange, collaborative research and development of new programmes

- Organization-sponsored partnerships, generally initiated by supranational institutions such as the European Commission, the United Nations or the OECD, covering specific topics (Barnett & Jacobson, 2010, pp. 257-261)

Given the focus of this research on physical mobility, this dissertation defines three relevant types of cooperation: strategic partnerships, joint-degree programmes and exchange programmes, the typology developed by Intriligator (1992) is used: Cooperation implies that all institutions involved remain independent and pursue a common goal (which may be to increase the number of exchanged students). By increasing the level of interdependence, other types of projects can be realized, with coordination as the fulcrum requiring the alignment of certain approaches and processes, for example, double-degree programmes. The highest level of interdependence means collaboration and implies a mutual dependence, such as in more complex strategic partnerships (pp. 2-3).

However, there is no generally accepted definition for a strategic partnership. This was reflected in the answers to this study's survey sent to universities, some universities considered all partnerships to be strategic, whereas others reported very few to be of a strategic nature. Consequently, the impact of strategic partnerships on the internationalization outcome cannot be measured in this research, which creates implications for future research: it is to be expected that strategic partnerships do have a significant impact on the internationalization process. Thus, it is likely to be very beneficial for further research to contribute to a joint understanding of strategic partnership, and to measure the impact of the instrument.

Exchange partnerships offer a limited complexity and the opportunity to build a high number of international contacts contributing to an international student body. Granovetter (1973) shows the strengths of the weak ties in social networks (pp. 1373-1376) – exchange partnerships can thus be considered weak ties. The additional relevance of cooperations is represented by the inherent tension between academic freedom and the resulting base-unit-driven actions for internationalization, and in a leadership-driven, strategic approach on the other hand (Hahn, 2004, p. 338). The idea of transforming cooperations at faculty level (base-unit-driven partnerships) to a strategic level has been described in the context of Neave's (1992, December 10) model of internationalization. This aspect is covered in the qualitative research by means of interviews. International exchange agreements thus deliver the benefits of increasing international visibility and enhancing the number of international students at the university.

Therefore, the following hypothesis is derived:

Hypothesis 6: The number of exchange agreements correlates positively with the development in ratios of both international students and international researchers.

Double-degree partnerships range between exchange and strategic partnerships, involving a higher organizational complexity than exchange programmes and representing a weaker tie than in strategic partnership. They contribute to organizational goals like international visibility, the enhancement of international students, and incorporate the additional advantage of integrating international students more intensively into the degree programmes.

Therefore, the following hypothesis is derived:

Hypothesis 7: The number of partnerships correlates positively with the development ratios of both international students and international researchers.

3.2.3 Impact of leaders' properties

This section aims at developing a hypothesis on the relevance of leaders to the internationalization behaviour of German universities. Thus, the following questions need to be answered. What is the theoretical grounding for the hypothesis that leadership matters at all to organizational behaviour? Under the assumption that leadership matters, who are considered the relevant people in top management in German research universities? After defining the relevant leaders, we discuss whether their behaviour can be predicted, and if so, which proxies can be used to do so.

Whether top management matters to organizational development is highly disputed: Bourgeois (1984) presents the roots of organizational determinism, which leads to the perception that executives largely do not matter: Environment and industry structure create an imperative and leave managers in the position of executing the inevitable or simply waiting for it to happen (pp. 586-587). The relevance of leaders in organizational decision-making was emphasized by Child (1997), who introduced the theory of strategic choice, including a process view that involves the perception of the external environment and the structuration of the inner-organizational reality. This process leads to learning, organizational decision-making, action, and thus the development of the organization, (pp. 69-70), an idea further developed by Collins and Hansen (2011), who emphasized the aspect of deliberate choices and the shaping of organizations by leaders (pp. 99-124).

Following this theory, a relevant part of literature considers the trajectory of organizations as reflections of their leaders' mindsets. Citing March and Simon

(1958), Hambrick and Mason (1984) developed the 'upper echelons theory' and argued that decision-making takes place based on individual knowledge and assumptions on future events, and the perceived existing alternatives and expected outcomes attached to them. The process is described by Hambrick and Mason in this manner: The perception of any situation is perceived from the basis of an individual's cognitive base and values limiting their field of vision, hence perceiving only part of the available information, interpreting it according to their own values and cognitive base, thus creating managerial perceptions and strategic choices (pp. 194-195).

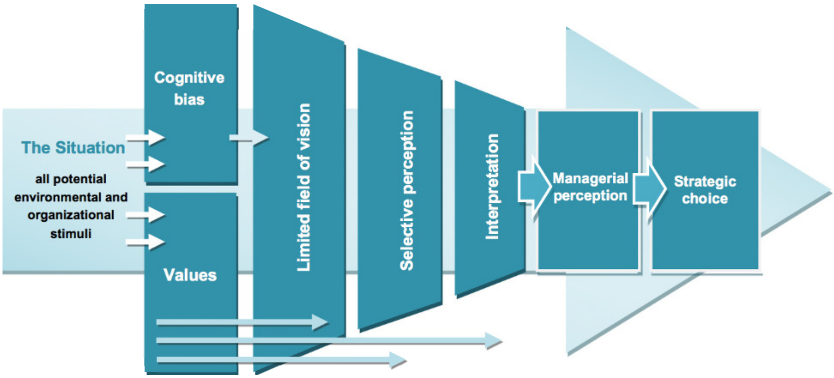


Fig. 16 Bounded rationality and strategic choice (from Goll, Sambharya, & Tucci, 2001, p. 111; author's own).

As Figure 16 above shows, the decision-making process of leaders involves the exclusion of information that is not perceived as valuable, as well as a selective perception and interpretation based on personal values and beliefs. A key aspect of these ideas was developed by Simon (1991), who introduced the concept of bounded rationality, dealing with the fact that not all information is available and – even if it were – humans would be unable to process it all. At the level of organizations, a complex array of incentives, loyalties and interactions create a decision-making process, which is different to that of individuals and will not always lead to decisions optimal to the organization's goals. Additionally, organizations have multiple and often conflicting goals that require decisions based on values, because organizations have multiple options and many levels of aspiration.

The literature generally agrees that ideally the thought processes of top executives should be researched and evaluated. Given the lack of valid data in this field, the literature has developed substitutes. Since people's attitudes are shaped by biography and experience, demographic data on managers may serve as a good proxy for their mental processes in decision-making. In terms of scientific theory-building, these data show significant advantages of observability, objectivity, content validity and data availability (Escribá-Esteve, Sánchez-Peinado, & Sánchez-Peinado, 2009, p. 582).

A significant stream of literature analyses the impact of the composition of the top management team of organizations. For German universities, the top management team would be considered the rectorate, consisting of rector (or president), chancellor and all vice presidents (Heinrichs, 2010, pp. 14-15). There is strong support for the idea that diversity within the team with regard to biography, country of origin, and educational background imposes a challenge on the team (in having to integrate different perspectives), but that it has an impact on outcomes (Bass & Bass, 2008, p. 684). These characteristics include demography, educational and functional background, and tenure in organization, as well as biographical data (Hambrick & Mason, 1984, pp. 194-197). Dauth (2012) presents different concepts of internationality: the vast majority participating in 66 studies named nationality and professional experience as relevant criteria for internationality (pp. 50-51). As not all CVs of members of directorates of German universities are published, this aspect cannot easily be researched. However, this research has checked available information on the internationality of top management teams, with the following results: none of the 78 rectors hold a non-German passport, and with regard to other directorate members, only one non-German could be identified among the CVs that were published. Thus it can be assessed that there is very little diversity within the management teams of German universities.

Given the collegial form of governance of universities worldwide, it is not surprising that leadership is not emphasized in the field of higher education. Morrill (2010) denotes it an 'irony' that institutions of research hardly challenge their own mechanisms of leadership and decision-making. Publications of universities reflect their collegiate nature and often refer to 'joint governance' and 'joint efforts', whereas leadership seems a 'repressed theme' (p. 4).

The role of leadership in German Higher Education has been strengthened in recent years. Bogumil (2013) presents the situation in 16 states with regard to formal authority to make decisions, and shows that leaders' influence has increased in the past 15 years, both through change of legislation and through decisions of the German Supreme Court (pp. 67-68; pp. 103-110). The increased influence of German university presidents has been perceived by the German press (Kühl, 2011, October 11), rather critically by some, who criticize lax control, networking beyond compliance benchmarks and non-acceptance of regulations. However, even critics accept that some presidents have delivered remarkable results (Becker, 2013, January

20). Additionally, the rector is the negotiating partner for the ministries, in most states the rector has direct influence on target agreements and development plans [*Struktur- und Entwicklungsplan*], is generally elected for five years (by contrast, vice presidents only serve two years), has no teaching obligations, and has thus a significant influence on the processes within the university (Bogumil, 2013, pp. 67-68; pp. 103-110; Hüther, 2010, pp. 366-388).

In the context of internationalization, the international experience of leaders provides multiple benefits to the process:

1. Advantages of internationalization have been experienced and can be communicated accordingly
2. It provides a sense of security and thus reduces perceived risk
3. Personal networks developed during the time of international experience can be employed for the organization
(Hitt, Tihanyi, Miller, & Connelly, 2006, p. 1164)

Following this research, hypothesis 8 is derived as follows:

Hypothesis 8: International exposure of rectors and presidents correlates positively with the development in ratios of both international students and international researchers.

3.2.4 Impact of external validation

Higher education incorporates two properties that make the case for external validation: as presented in section 1.1.5. on information economics, its quality is difficult to assess. At the same time, the quality and reputation of a university have a strong impact on the future careers of students and scientific staff. Therefore, this section explores the relevance of external validation, in the form of international rankings, on the internationalization process.

3.2.4.1 International rankings

The idea of rankings is based on the concept of information economics, that higher education is so complex that students are unable to judge its quality before enrolling at a university (Mause, 2007, pp. 113-114), and that rankings serve the need of students for information on academic quality (Dill & Soo, 2005, p. 495). Their emergence is considered a consequence of massification and increased competition (Altbach, 2013, p. 82). Dill and Soo (2005) point to a positive consequence of rankings in public accountability, as rankings make the attempt to measure output of higher education (p. 496).

The strong advantage of rankings is seen in the reduction of complexity, reducing vast quantities of information to more condensed and accessible data, or even one number or rank. This imposes a significant challenge on rankings to assess entire universities, as each one presents a unique combination of mission, resources available, environment in terms of regulation and support, and many other factors (Shin & Toutkoushian, 2011, p. 2); additionally, universities are internally differentiated (Van der Wende, 2008, p. 58).

These aspects are often not perceived by the general public: Shin and Toutkoushian (2011) diagnose a 'perceptual disorder' due to the belief that high-ranked institutions deliver superior teaching, research, and contribute more to society. However, as discussed in this research, these missions often conflict with each other (p. 3).

There is a broad consensus in literature that rankings have a strong impact on higher education. Hazelkorn (2013) diagnoses an obsession with rankings having a high impact on university leadership, politics and derived strategies, she assesses that few institutions have remained immune to it. Locke (2011) considers rankings to be a key instrument of reputation building – crucial in the competitive, reputation-driven market of higher education (p. 201).

Literature assesses that a significant number of universities are influenced by rankings and their criteria, one being internationalization. Thus, rankings are considered a means of enforcing the imperative to internationalize. Kehm and Teichler (2007) denote that the relevance of rankings in the process of internationalization has even increased (p. 265).

Critique against rankings comes from different perspectives: one perspective is the validity of used data. The underlying data originates in three main sources, government databases, data provided by universities themselves, and service. Government databases are considered the most reliable, all other sources show significant risks of distortion (Hazelkorn, 2013, p. 500).

The literature has identified four key biases of rankings: **a preference for natural sciences and medicine** at the expense of social sciences and humanities; **field normalization** as a failed attempt to remedy the first bias; **the peer review bias,** giving further preference to high-reputation researchers, and the **language bias**, favouring English-medium universities (Kehm, 2013, pp. 22-23).

These shortcomings create an isomorphism, in the sense that a high number of universities map the ranking criteria to their strategy and thus diversity of the system is reduced. As Van der Wende and Westerheijden (2009) note, 'institutions act rationally and strategically in becoming what is measured' (p. 77). Additionally, differences between disciplines are hardly taken into account, for example, publication-intensive disciplines lead to a higher publication ranking – whereas disciplines with a lower tendency to publish face a significant disadvantage (Shin & Toutkoushian, 2011, p. 12). Marginson and Van der Wende (2006) concede that all ranking systems are incomplete in describing reality and that they build in biases (as described above) – and emphasize that these shortcomings do not diminish their strong impact on the realities in international higher education (p. 308).

Marginson (2007) considers two rankings to be globally significant, the Times Higher Education Ranking (THE), and the Shanghai Ranking (p. 132), and Van der Wende and Westerheijden (2009) agree on this selection (p. 54). Sutin and Jacob (2016) agree and add the Leiden Ranking (p. 23), which is represented in this research when evaluating publication performance. These rankings and their evaluation processes are described as follows:

Times Higher Education introduced a new systematic of performance measurement for rankings for 2010 and beyond, including five categories, being research (55%), institutional indicators (25%), institutional diversity (10%) and economic activity and innovation (10%) (Baty, 2010). The methodology of the ranking reveals that 34.5% accounts for reputation (15% in teaching and 19.5% in research), which is collected by means of surveys among academics. Ratios of students per academic, awarded PhDs related to academics, and ratios of academics to undergrad students, are used as proxies for quality in teaching (Times Higher Education World University Rankings, 2010).

Holmes (2017, June 16) underlines that this kind of measurement of reputation is problematic and criticizes the bias created by the selection of participants in terms of origin, discipline and level of seniority. Federkeil (2013) questions the reliability of the measurement of reputation: results strongly depend upon the structure of the sample with regard to region, subjects and participants. The usage of the proxy of ratios for quality has been criticized, as it violates a principal of rankings in measuring output – and these criteria are clearly input-oriented (Marginson & Van der Wende, 2006, pp. 310-311).

The so-called 'Shanghai Ranking', originally 'Academic Ranking of World Universities (ARWU)', deliberately refrains from being a holistic university ranking system, by focusing entirely on research performance. The rationale behind this was that internationally comparable data was only available for this particular aspect of university education. Based on these ideas, the following concept was developed: 20% of the results are composed of citation in leading journals, 20% for articles in natural sciences, 20% for the number of high-impact researchers, 30% of the index originates in awarding the location of training for Nobel Prize winners (10%)

and their current employment (20%). The remaining 10% is awarded for per capita academic performance (ShanghaiRanking Consultancy, 2016).

Marszal (2012, October 4) describes that the Shanghai Ranking delivers fact-based, stable results – at the cost of a very narrow focus on research. Wildavsky (2010) adds that this methodology entirely excludes aspects like student qualifications, class size, student retention and completion rates (p. 113).

Overall, these two rankings favour big universities with few members of scientific staff not active in research, universities with strong activities in sciences and universities publishing in the English medium (Marginson & Van der Wende, 2006, p. 311). Altbach (2010, November 11) adds that teaching quality – although seemingly represented by proxies in the Times Higher Education Rankings – is not captured in its substance.

Wildavsky (2010) presents a pragmatic view on rankings by acknowledging the shortcomings of rankings as described above. He makes the point that rankings do provide additional information and that their existence is an indicator for a well-functioning market for global higher education. He draws the conclusion that rankings may encourage universities to improve quality of research and teaching and thus serve that purpose (pp. 134-140).

This research shares this view: as presented in the decision-making process of researchers and students, rankings are prominently represented (Shin & Toutkoushian, 2011, pp. 10-11). Thus, it seems reasonable to consider rankings a fact of international higher education that needs to be taken into account in the domain of strategy.

Based on this literature, the following hypothesis is derived:

Hypothesis 9: Superior results in both internationally relevant rankings correlate positively with the growth in ratio of international students and international scientific staff.

In order to evaluate the impacts of publications directly on the recruitment of international researchers, an additional criterion is used: citation analysis. This is a subset of rankings and nearly all of them employ this technique. Citation analysis is based on the assumption that the fact that other researchers cite papers is an indicator of their quality. Today, electronic citation analysis allows for the inclusion of a vast quantity of documents of different kinds and for delivery of the current status of citation instantly.

Citation analysis is considered to be a valuable benchmark due to a number of properties: it operates formally, which means that indicators and their procession is known – algorithms are open; citation analysis is scholarly founded, assumptions and limitations are clearly stated; it operates in a clearly defined policy context and it stimulates scholarly effectiveness (Moed, 2006, pp. 2-3).

Criticism originates from different perspectives: the discipline dependency describes the fact that international publication has a different likelihood depending on the discipline. For example, research in the education of teachers in Germany is far less international than is natural sciences. Merton (1968) described the Matthew effect on recognition in the field of science – 'For whosoever hath, to him shall be given, and he shall have more abundance: but whosoever hath not, from him shall be taken away even that he hath' (Matthew 13:12, King James Bible) – where scholars who are already well-known and cited in high-frequency are remembered more easily, their citation suggesting more relevance – thus it is a self-reinforcing process (Merton, 1968, pp. 57-59).

For this research, the Leiden Ranking was selected to measure internationally impacting research of the universities, for its methodological rigidity and clarity. This ranking offers several indicators; in order to measure international impact, the PP indicator is used to measure the proportion of the universities' publications that were among the 10% most cited publications in their field. Rauhvargers (2013) agrees that this indicator is likely to deliver the best results – bearing in mind the general downsides and biases inherent to rankings (pp. 47-50).

Based on this literature, the following hypothesis is derived:

Hypothesis 10: Results in Leiden Ranking for publications correlate positively with the growth in ratio of international scientific staff.

3.2.5 Environmental factors

This research has identified the ratio of both international students and scientific staff as a dependant variable – both being a reflection of individual decision-making processes. Thus, the relevant environment is defined by the decision criteria of international students and scientific staff.

Consequently, this research aims at capturing the decision-making process of students and researchers and juxtaposing it against measurable indicators of German universities by using secondary data from official statistics; the decision-making process and its criteria are derived from existing literature. Bessey's (2012) study on student influx to German universities focuses on the macro level: what type of countries students originate from, their level of income and the impact of personal networks. The author provides evidence that an existing body of students of one nationality facilitate the recruitment of additional compatriots – word-of-mouth is one key aspect in international student recruitment. Additionally, the author assumes a high relevance of partner universities (pp. 357-361).

The next step is thus to delimit factors within the control of universities and those beyond their control. Literature differentiates between push and pull factors, push factors being effective in the source countries initiating and directing students' decision to study abroad, whereas pull factors take place in the destination countries, making them more or less attractive than their competitors (Mazzarol & Soutar, 2002, p. 82). The first is not discussed any further in this research; the latter represents the basis of this section.

Researchers generally agree on a set of criteria: quality (largely covered by rankings), career opportunities upon graduation, part-time working opportunities while studying, and being welcome and safe as an international student (see the following Table 7). Maringe (2006) reports the utilitarianism of international students – intrinsic motivation to study a particular subject in a particular country for personal reasons has become the exception. He shows that international students focus on career aspects, quality of education, teaching in particular, and the availability of part-time jobs in the local economy (pp. 474-477).

Literature suggests that many international students are in search of part-time working opportunities (Binsardi & Ekwulugo, 2003, p. 323; Maringe & Carter, 2007, pp. 466-467), thus requiring a local economy willing to integrate international students into their workforce. This leads to the second aspect, the cultural conditions. These encompass general attitudes towards foreigners, and the willingness of the local society to interact and communicate with them.

Literature suggests that students prefer environments where other internationals, especially compatriots, already live – thus delivering proxy for the desire to feel safe and welcome as an international student (Mazzarol & Soutar, 2002, p. 82). Therefore, this research takes the ratio of inhabitants with a migrational background, which is defined by the fact that a minimum of one parent is non-German. This approach can be criticized for non-differentiation between different kinds of immigration; international students may prefer academically educated people. Past immigration has included a high number of non-academically educated people. However, international students do desire a sense of openness in the local society. The fact that a community has integrated a significant number of people with different backgrounds can be taken as a proxy that international students are generally welcome.

Whereas data and theory on student mobility is available in abundance, literature bemoans the paucity of data available on academic mobility (Teichler, 2015, S21). Existing literature on international academic mobility provides a three-level model to explain it: the macro level captures the decision of the country, depending on expenditure on R&D, international division of labour, international relations, historical events and economic growth. This aspect has been presented in section 2.5. in the context of the SWOT analysis. This section focuses on the relative positioning of German universities against each other.

The micro institutional level encompasses the profile of the individual host institution; it thus includes academic disciplines and research activities, with particular regard to international scientific cooperation. These aspects are reflected in the general rankings and the specific ranking on the research performance of universities, which is here measured by the Leiden publication ranking. The individual level takes into account the personal situation regarding the motivation of the research: the stage of career, the tenure offered, the family circumstances, and derived requirements for environment, as well as previous international experience (Rostan & Höhle, 2014, pp. 86-87).

Consequently, students and scientific personnel have different priorities for evaluating the environments of a university: with students focusing on the availability of part-time jobs, scientific personnel are expected to have a more complex array of criteria, including social infrastructure, the availability of human capital, and leisure activities. These aspects are covered by the DIW City Rankings, which are presented in the next chapter.

As the following Table 7 demonstrates, the criterion of organizational reputation appears to be the most relevant, followed by ease and reliability of admission and visa process, and the aspect of working opportunities during and after studies, combined with employability of graduates. For Germany, the aspect of personal safety and social environments are added by international students.

Table 7 Overview of Studies on Students' Decision-Making Processes

Author	Target Country	Origin of Students	Factors of Impact	Relevance for this Research
Mazzarol and Soutar (2002):	Australia	China, Indonesia, India, Taiwan	• Reputation of institution • Internationality of student body • Ease of admission process • Partner universities known to student	• Visa process • International student body as self-reinforcing • Partner universities
Binsardi and Ekwulugo (2003):	United Kingdom	Various	• Rank 1: Reputation of institution and earned degree • Rank 2: Ease of admission and visa process • Rank 3: Employment during and after study • Rank 4: Total cost of studies, safety, culture	• Visa and admission process • Partner universities • Employability, availability of part-time jobs
Maringe (2006):	Various	United Kingdom	• Consumerist approach of students • Career opportunities and price/quality ratio	• Employability during and after studies
Maringe and Carter (2007):	United Kingdom	Africa	• Reputation of institution and earned degree • Ease of application and visa process • Studious environment • Reduction of risks (financial, legal, familial)	• Visa process • Relevance of environment
Chen (2008):	Canada	2 studies: Asia and various	• Reputation of institution • Reputation of respective researchers growing with level of education • Multicultural, safe and studious environment • Ease of visa process, future employability	• Employability • Visa process
Bessey (2012):	Germany	Various	• Network effect: student base in Germany; network of partner universities • Economic situation of students' parents (not generally positively correlated) • Home countries of students: free countries overrepresented	• Partner universities
Ripmeester and Pollock (2014):	Germany	Various	• Personal security • Reputation of degree • Cost of education • Social environment • Visa process • Working opportunities upon graduation	• Reputation of degree • Cost of education • Visa process • Working opportunities upon graduation

The German Institute for Economic Research (DIW) has conducted a study to evaluate wealth in 50 bigger German cities, called 'City Ranking 2012'. The authors nominate the following indicators to represent the judgment upon the city:

1. Wealth, composed of purchasing power, tax revenue per capita
2. Labour markets represented by unemployment rate, employment ratios and availability of jobs
3. Structure, composed of structural economic declaration, sociocultural structure, and government
4. Location, capturing human capital, infrastructure cost, availability of leisure offerings and evaluation of on-site companies (German Institute for Economic Research [*Deutsches Institut dür Wirtschaftsforschung*] (DIW), 2012)

Method-wise, the study uses publicly available data, such as national accounts data from the German Federal Statistical Office (Destatis), data from the Federal Employment Agency [*Bundesagentur für Arbeit*], literature review and Internet research. These data are accompanied by surveys among entrepreneurs and additional research upon headquarters of companies. All observations are subsumed under these four criteria, with standardized values transformed into a point system between zero and 100. The maximum value of 100 is attributed to all indicators with the value that exceeds the average of all big cities +5 standard deviation or better, the minimum value of zero is attributed to a city with an indicator average of all big cities -5 standard deviation or worse, all values in between are calculated by linear interpolation. In the next step, the study assigns weights to the criteria (DIW, 2012, pp. 6-8; pp. 25-27).

This study is chosen as secondary data for this research for the following reasons:

1. Methodological rigidity and transparency: data originate from reliable, verifiable sources, such as federally funded offices for statistics and employment. The criteria are mutually exclusive and provide a meaningful insight into city attractiveness in the defined sense.
2. Criteria capture important aspects for international students' and researchers' decision-making process: as discussed, literature assumes that a number of these criteria are highly relevant to the respective process. Combined with the fact that the criteria are well-separated, isolated factors of impact developed in the City Ranking can be used for this research.

Given the different objective of this research as compared to the City Ranking, this research refers to the criteria and the calculated values – but derives the weights from literature about international students' and international researchers' decision-making process.

In terms of the criteria of international students, the labour market reflects that requirement of providing for part-time jobs. All of the other city rankings are not mentioned in the respective literature and are thus not taken into account for the hypothesis generation.

Literature has shown that the visa process, in terms of reliability and ease, matters to international students. It can be assumed that the same holds for international faculty. The visa process for international students depends strongly on their origin of passport: students from EU countries (and a few additional ones) are privileged in not needing a visa to study in Germany, as the right of free movement applies. Students from other countries have to apply at the German representative (Embassy or Consulate) for a visa. Criteria encompass having a sufficient amount of funds, knowledge of the language of instruction, academic ability proven by documents, as well as consistency in the application. In the further process, the Foreigners Office [*Ausländerbehörde*] has to approve the application (Federal Foreign Office [*Auswärtiges Amt*], 2017).

Despite the significant relevance of the visa process to international students and researchers, no reliable data on the visa process are available. These aspects represent an implication for further research: duration, perceived reliability and weight criteria for visa success, in comparison to the main competitor countries.

Therefore, the following hypotheses are derived:

Hypotheses 11: The attractiveness of the city (differentiated by students and researchers) correlates positively to the growth in ratio of international students and international scientific staff.

Hypotheses 12: Given the need for international students and faculty to be accepted and ideally welcomed into the new environment, the ratio of international people in the region of the university correlates positively with the development of the ratio of both the international students and international researchers.

Hypothesis 13: Based on the network effect described by literature, the internationalization of the student body and the international researchers is self- reinforcing, thus a positive correlation of ratio of both international students and scientific personnel to the change in both indicators is expected.

3.3 Research Design

3.3.1 Methodology

A mixed-method approach – from quantitative to qualitative – aims at making findings from the quantitative part more understandable. The quantitative part includes hypothesis development and testing by means of statistical analysis. It aims at delivering objectivity and neutrality through a combination of verifiable data and clear-cut research methods. Ideally, causal relationships can be discovered (Huff, 2009, pp. 184-185).

This research employs the following typical goals of quantitative research, as presented by Huff (2009): hypothesis testing, testing of theoretical explanations, and (if the results suggest) building a model for future approaches (pp. 183-186). The quantitative part of this research design is thus supplemented by a qualitative approach, detailed in the next chapter.

Quantitative research generally employs two strategies of inquiry: experiments and surveys. Whereas the former aim at relating specific treatments to outcomes by comparing separate groups, surveys deliver quantitative or numeric descriptions of trends, attitudes or opinions (Creswell, 2013, pp. 12-13). Given the nature of the process, experiments are not feasible, thus official data and data from the survey is used.

This part implies a deductive approach: hypotheses are derived from existing theory and drive the process of data gathering (Bryman & Bell, 2016, p. 23). Cooper and Schindler (2003) describe the relevance of hypotheses to research, in serving as guideposts, distinguishing relevant facts, corresponding to the chosen research design and providing a framework for organizing conclusions. They derive the properties of good hypotheses as adequate for the purpose and testable, with testability encompassing the property of being falsifiable (pp. 52-53). This research employed several steps to ensure adequateness: all hypotheses were derived from extant research on the topic. All hypotheses clearly describe an expected correlation in order to enable testing. This method refers to the definition of quantitative hypotheses in making predictions about expected relationships between variables. The null hypothesis (H_0) describes the outcome that no or no significant relationship exists (Creswell, 2013, pp. 132-134). Scientific work requires validity and generalizability. Generalizability covers the relationship between sample and entire population, and is assumed if the research chooses a representative sample and allows the generalization of findings beyond the sample (Bryman, 2016, p. 176). This research aims at covering the entire population, which has been achieved when using official data; when using survey data, this aspect is discussed in the section on the findings and limitations of the study. Robson and McCartan (2016) define validity as accuracy of the results, comprising aspects of whether the real state of affairs is captured and whether the cause-effect relationships are properly designed. In other words, does the research capture what it sets out to capture (p. 85)?

This can be achieved through methodological rigour, which includes construct, internal, external and statistical validity. Construct validity demands an exact definition of the status of research and its theoretical backgrounds. All concepts included in this research are based on theory; if theory from other areas is transferred, the thought processes are made transparent. Internal validity can be assumed if the cause-effect relationships can be interpreted as having a high probability. Robson and McCartan (2016) describe threats to internal validity, of which the following aspects are considered relevant to this research: changes within the observation period, distortion through selection, and ambiguity about the causal relation (pp. 88-89). This research delivers internal validity through the following aspects: generally this research aims at including the full population, thus eliminating selection effects; changes within the observation period that affect all universities equally, such as the enhancement of international students' rights (see section 2.4.1.2), are described in this research and thus do not distort the picture. Ambiguity about the causal relationship is discussed wherever this risk applies. External validity can be assumed, if the generated theory is applicable to places, times and operationalizations other than the ones covered in the research. This research delivers external validity by combining different origins of data, different methods, and the inclusion of data covering more than one year. Statistical validity requires the development of theory-based hypotheses that are tested by use of generally accepted statistical methods (Döring & Bortz, 2016, pp. 93-96). This research derives all hypotheses from literature, and tests these hypotheses by means of careful data collection and quantitative data analysis. To further enhance validity, methodological triangulation is applied by combining quantitative and qualitative methods to the same phenomenon (Flick, 2011, pp. 13-16).

Data was gathered using an online questionnaire, which was sent to participants who could insert their answers into the online survey. Bryman and Bell (2016) classify the used questionnaire as self-completing and present the profile of this type of data-gathering: it requires fewer resources to administer as this is delivered by software, it is quicker to administer as invitations can be sent instantly via email, and it excludes interviewer variability due to the absence of the researcher while participants fill out the questionnaire. These advantages are juxtaposed to the following disadvantages: the absence of the interviewer eliminates the option for participants to ask whenever questions are unclear to them, or of a trained interviewer being able to rephrase the question and receive an answer. Additional data – which may be offered in a personal interview – cannot be collected, response rates are generally lower, and this form of research incurs a greater risk of missing data (pp. 241-242).

The process and design of the survey and questionnaire largely determine reliability and validity: only comprehensible and unambiguous questions lead to internal validity (Robson & McCartan, 2016, p. 239); the questions asked for well-defined numbers in the context of internationalization of German universities. Bryman and Bell (2016) present a number of actions to improve response rates: the inclusion of a cover letter explaining the project and guaranteeing confidentiality, follow-up on individuals who did not participate, providing clear instructions, and including as few open questions as possible (pp. 242-243). As presented in Appendix A, this research provided a description of the research project as well as an email cover letter.

The survey was sent out in May 2015 after having been announced by a telephone call and the research project described in short telephonic conversations. The challenge in motivating German universities to participate is multifaceted: given the strong interest in German universities, combined with the fact that they are part of the scientific community, confronts them with a high number of research projects in search of data. Additionally, universities with comparatively low ratios of international students were reluctant to participate due to concerns of reaching a low ranking. The research design, including the approach to measuring change instead of absolute numbers and anonymity, generally removed this concern. As described in section 3.2.2., the level of internationality of a university, measured by the two ratios of its international students and its international scientific staff, is strongly influenced by the portfolio of disciplines. As Weissmann (2005) denotes, performance indicators aim at capturing causal relations (p. 70); in the context of higher education, it thus seems inadequate to assume that management actions can explain these two ratios. However, given the enhanced freedom of universities and strengthened leadership authority afforded to leaders, it is deemed reasonable to assume that strategy and leadership of universities do have an impact on the change of these ratios.

3.3.2 Population, data collection, questionnaire design and processing

There are 78 German public research universities, thus the full population has – from the statistical perspective – a limited size. In order to capture all information available, this research includes the entire population in this quantitative part. Additionally, many aspects of the internationalization behaviour of German universities are covered by official statistics, which have the advantages of availability, objectivity and reliability. Thus, wherever possible, official statistics were used to generate data, bolstered by a survey sent out to universities to answer additional questions.

In order to record the effects of expected factors of impact, this research compared the internationalization outcome of 2015 to that of 2010. As no comparable study could be found and there is no direct benchmark for this period, the decision was based on this rationale: the year 2015 compares well with the data from the survey, and the year 2010 marks the starting point of the audits for internationalization conducted by the University Rectors' Conference (HRK, 2017b). This initiative can be interpreted as an additional commitment of the German system of higher education towards internationalization.

The expected relationship between the variables is described in the respective following sections. With regard to the time needed for an intervention to deliver internationalization results, theory on time lags is used: the general assumption is that an action generally needs time to deliver results, as other parties need time to adjust to it (Piekenbrock, 2009, p. 257). Hambrick and Mason (1984) agree that management action and the attributes of managers take time to deliver results (pp. 194-197), thus independent variables were generally taken from 2012 (assuming three years for the effects to emerge) to evaluate their impact on the development from 2010 to 2015. In his study on UK universities, Ayoubi (2013) included data from the same year as his study, thus measuring the impact of 2001 strategies on 2001 outcomes, and randomly tested whether factors of impact (such as mission statement) were unchanged over a longer period of time (pp. 223-230). This research checked the value of each variable in the year 2012 to ensure correct data.

The questionnaire aimed at capturing key elements of internationalization approaches of universities, starting with the question of whether an internationalization strategy was in place in 2012, followed by questions on organizational support for internationalization and the usage of online courses. Additionally, the universities offering English-medium programmes and international networks were asked. The last question covered statistics on doctoral students and the total number of programmes.

Dependent Variables

In order to eliminate the effect of differing initial positions, the target variable is represented by the change in ratio of international students and international scientific staff, rather than the absolute number. Internationality differs strongly across disciplines: whereas natural sciences generally publish internationally and encourage international research careers (Shin & Toutkoushian, 2011, p. 12), subjects like the education of future teachers for German schools include few elements of internationalization – as one interviewee in the qualitative section of this research remarked: 'The ministers of science in education have decided to largely educate future teachers without elements of internationalization' (Interviewee 6, personal communication, January, 2016). This is reflected in the ratio of international students and researchers of universities characterized by a high relevance of pedagogics, such as the University of Vechta (focus on pedagogics) with 2.12% international students and 4.38% international scientific staff, contrasted by the Clausthal University of Technology (engineering focus) with 27.2% and 19.4% repectively (Burkhardt, 2013).

Physical mobility represents a central aspect of internationalization, as it encompasses an intensive kind of interaction for all parties involved, and presents students the experience of the host country first-hand (Brandenburg & Federkeil, 2007). Therefore, the dependent variable, change in ratio of international students from 2010 to 2015, was assessed by comparing the respective official statistics (Burkhardt, 2011, 2016). The ratio was then calculated as follows:
Ratio of international students in 2015 / Ratio of international students in 2010

International faculty represents an element of Internationalization at Home (Bedenlier & Zawacki-Richter, 2015; Foskett, 2012, pp. 39-41). Consequently, the second dependent variable, change in ratio of international scientific staff, was assessed and calculated in the same way:
Ratio of international scientific staff in 2015 / Ratio of international scientific staff in 2010

Independent Variables

The following aspects of strategic management are expected to have an impact on internationalization outcome and have been gathered and processed as follows: the existence of an internationalization process in 2012, the content of mission statements in 2012, the degree of specialization and the size of universities.

Whether an internationalization strategy existed in 2012 is asked in the questionnaire, additionally an Internet research is conducted. When evaluating the role of formal strategy in the internationalization process of German universities, it has to be taken into account that incentives by government and government-funded agencies (such as DAAD) distort the picture: as described in section 1.1.3. Universities face incentives to craft internationalization strategies: many University Development Plans of states explicitly expect that universities develop internationalization strategies and follow them. In order to produce a realistic picture of German universities' approach to strategy, this research proceeds as follows: in the quantitative survey the existence of a strategy in 2012 is measured on a binary basis, as internationalization strategies were not as common at that time and incentives went into effect later. It is thus assumed that an internationalization strategy in place in 2012 can be interpreted as an organizational commitment to internationalization. However, this research refrains from evaluating the execution of strategy and the evaluation of strategy according to business theory. In the qualitative survey, rectors and presidents of six selected universities are asked about their attitudes towards strategy and its relevance. This approach is presented and discussed in the respective sections of this dissertation.

Mission statements as of 2012 and their content are expected to have an impact on the internationalization outcome; they are taken from an Internet search and, in cases of doubt, universities were contacted and asked for their 2012 statement. In a study on the internationalization of UK universities, Ayoubi and Massoud (2007) assigned scores to mission statements ranging from 0 to 4 depending on the number of concepts of internationalization mentioned (pp. 342-343). Given the relevance of internationalization to the further development of universities and the expected predictive value of university mission statements, it is expected that mission statements make a declaration on the university's mindset towards internationalization. Thus, mission statements of German universities are analysed by means of qualitative content analysis, counting words referring to internationalization and relating this number to the size of the document measured by the number of words.

The degree of specialization was assessed according to the university's name, as this research takes the standpoint of students and international faculty in their decision to join a particular university. As they have to deal with a large amount of information, they are likely to use proxies in their decision-making process. It seems reasonable that the general orientation of the university is derived from its name, being a full university (not specialized), a technical university (specialized) or one highly specialized in a certain field, for example mining or sports.

The university size is defined as the number of students in 2010 as taken from official statistics.

The expected impact of leaders is based on Hambrick and Mason (1984, pp. 194-195), and Pinkwart and Proksch (2013, p. 47), with data retrieved from the publicly available CVs of university leaders, and the international exposure calculated as described previously. If available, CVs were retrieved from the official websites of universities. These CVs were used for analysis; if there was no CV available on the university website, a global Web search was performed, with first choice being the Internet archive. If no other source was available, Wikipedia.de was used as 'last resort'. Given the fact that organizational change takes time to present its benefits, literature shows that tenure matters (Norburn & Birley, 1988, pp. 229-235). In order to reflect this aspect, leaders with a minimum tenure of four years in the timeframe between 2010 and 2015 were included in the analysis, and the international professional experiences of rectors were counted as presented in their officially published CV.

The relevance of international networks is derived from Granovetter (1973), and Bessey (2012). As described below, data has been gathered through the survey.

The relevance of the properties of the physical environment of the universities, in terms of economic strength (and resulting employment opportunities for students and graduates) and its internationality (measured by the ratio of people with migrational background), is based on the analysis of decision-making processes. These studies provide the framework for the derivation of the expected preferences of international students and scientific staff (Bessey, 2012; Maringe, 2006; Maringe & Carter, 2007; Mazzarol & Soutar, 2002; Ripmeester & Pollock, 2014; Rostan & Höhle, 2014). Data on the structure of population with regard to internationality is taken from official statistics; data on economic strength is taken from the City Ranking conducted by the German Institute for Economic Research (DIW).

The relevance of external validation is based on theory provided by Ripmeester and Pollock (2014), and Maringe and Carter (2007), with data retrieved from the websites of providers of rankings. Method-wise, universities are categorized in these groups: the top group encompasses all universities having achieved a placement in the top 100 in either one of the two internationally relevant rankings; group number two encompasses universities with a placement in either one of the rankings, and group number three consists of universities that are not mentioned in either one of the two rankings. In order to capture the impact of this ranking on the development of ratios of international students and international researchers, ranking results from the year 2012 are used and taken from the websites of institutions.

The relevance of international faculty to the internationalization of the student body is based on theory provided by Foskett (2012), and Bedenlier and Zawacki-Richter (2015), with data on ratios of international faculty taken from official statistics.

This self-reinforcing effect of internationalization on both student body and international scientific staff is based on theory provided by Bessey (2012), with the data from official sources.

4 Testing, Results and Interpretation

4.1 Descriptive Statistics

This research received 28 out of 78, or 35.8% responses. As Robson and McCartan (2016) denote, there is no clear threshold for participation rate defined in literature (p. 260).

Data were electronically recorded by the SoSciSurvey.de (Leiner, 2014) online portal and transferred into SPSS format for processing.

German research universities have moderately increased their ratios of international students and international scientific personnel, as Table 8 below shows. The ratio of international students on average increased from 9.16% to 9.97% in 2015, whereas the ratio of international scientific personnel increased from 11.01% to 12.3% in 2015. The average includes a number of strong outliers: the strongest increase recorded amounts to 212% in the ratio of international students and 120% in the case of international scientific personnel.

Table 8 summarizes internationalization outcomes in the defined sense, in 2010 and 2015.

Table 8 Internationalization Outcomes of German Universities for 2010 and 2015

2010	Min	Max	Median	Mean
University Size	2.422	62.954	17.078	18.175
International Students	70	5.162	1.254	1.689
Ratio International Students	2.04%	31.77%	8.53%	9.29%
Ratio International Science Staff	2.96%	25.67%	10.31%	11.01%
2015	Min	Max	Median	Mean
University Size	2.368	69.258	19.686	21.643
International Students	103	7.025	1.638	2.165
Ratio International Students	1.94%	25.06%	9.14%	9.97%
Ratio International Science Staff	3.89%	24.88%	12.07%	12.30%

U. Bremer, *Internationalization Strategies of German Universities*,
Schriftenreihe der HHL Leipzig Graduate School of Management,
https://doi.org/10.1007/978-3-658-22133-1_4

As the previous Table 8 indicates, German universities have moderately increased the ratio of international students and international scientific staff; as discussed above, the large spread in the ratios of international students and researchers is apparent. Table 9 below delivers the descriptive statistics on the change in ratios of international students and researchers.

Table 9 Change in Ratios of International Students and Researchers

	Mean	Median	SD	Min.	Max.
Change in ratio of international students 2010-2015	10.11%	3.10%	33.84%	-30.38%	212.20%
Change in ratio of international scientific personnel 2010-2015	14.84%	12.78%	24.48%	-37.71%	120.18%

Table 9 underscores the fact that German universities have increased the ratio of international student body and faculty, with a strong spread becoming apparent.

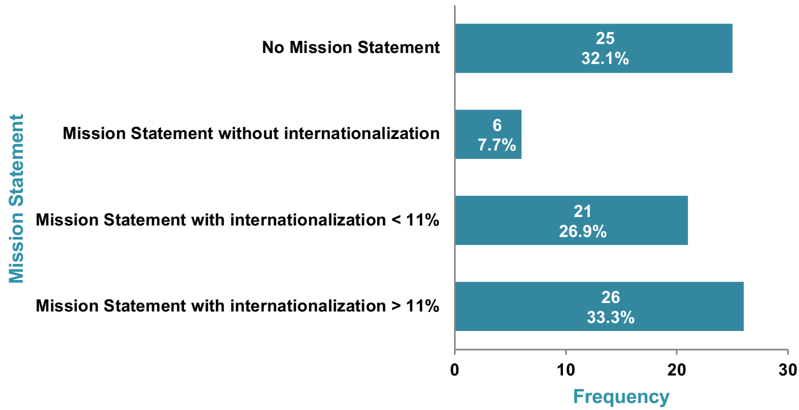


Fig. 17 Mission statements and reference to internationalization (author's own).

As Figure 17 above indicates, the following status in the year 2012 could be assessed: The instrument of a mission statement in the year 2012 was used by 67.9% of the universities, the remaining 32.1% had no mission statements published, 7.7% did not mention internationalization at all, 26.9% had a content of less than 11% with reference to internationalization, and 33.3% had about 11% content with reference to internationalization.

The international exposure of rectors showed the following distribution: 26.9% of the universities were in a period of transition with regard to their rector. As described in the development of the hypothesis, this property has been defined extensively: all universities who did not have one rector in office during the four-year period of 2010 until 2015 were considered 'in transition'. Rectors fulfilling this criterion (of a minumum four years in office) were divided into three categories: the lower group consists of all rectors not having mentioned any international professional experience, as no threshold value dividing the remaining group could be found; this group of 37 rectors was evenly divided between the top and middle group. The following Figure 18 indicates the distribution of universities into the four defined groups.

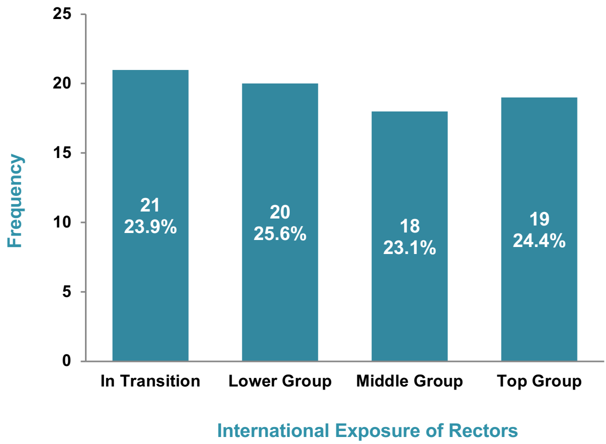


Fig. 18 International exposure of rectors – distribution (author's own).

The question of whether universities had an internationalization strategy in place in the year 2012 was not answered by all universities. As described in section 1.2.2., the following information sources were used: website analysis, Internet archive and direct contact to universities. In 14.1% of the universities it was still not possible to find out this information; 51.3% had no internationalization strategy in place, compared to 34.6% who had one in place. Figure 19 below indicates the distribution of universities into three defined groups according to the criteria of an internationalization strategy in place in 2012.

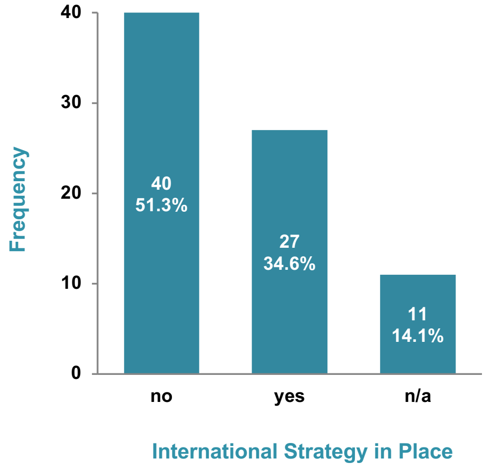


Fig. 19 Internationalization strategy in place in 2012 – distribution (author's own).

The next aspect captures the degree of specialization: German universities are largely not specialized; 71.8% show this property, compared to 17.9% of partial specialization, and 10.3% of highly specialized universities. As the specialized and highly specialized universities did not deliver different results, the groups were merged. Figure 20 below presents the distribution according to this criterion:

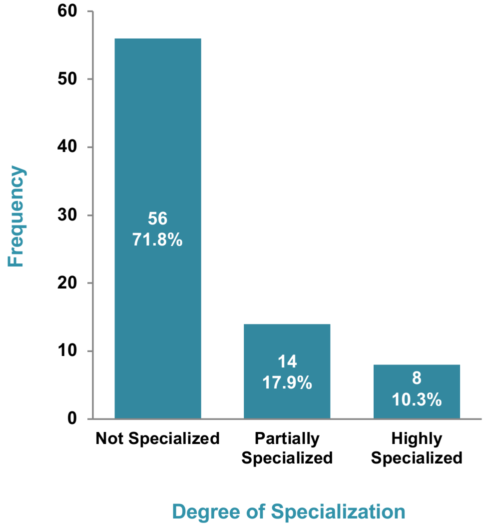


Fig. 20 Degree of specialization – distribution (author's own).

With regard to international rankings, the classification developed in the section on hypothesis development is used: the top group includes all universities having reached a placement in the top 100 in the two selected rankings, the middle group requires a placement in a minimum of one of the rankings and the lower group encompasses all universities not being mentioned in the two rankings. Thus, it can be remarked that a small group of elitist universities has emerged among German universities, about 40% of the German universities reach a placement in the most well-known international rankings, and slightly above 50% are not covered by the two major rankings. The following Figure 21 presents the distribution.

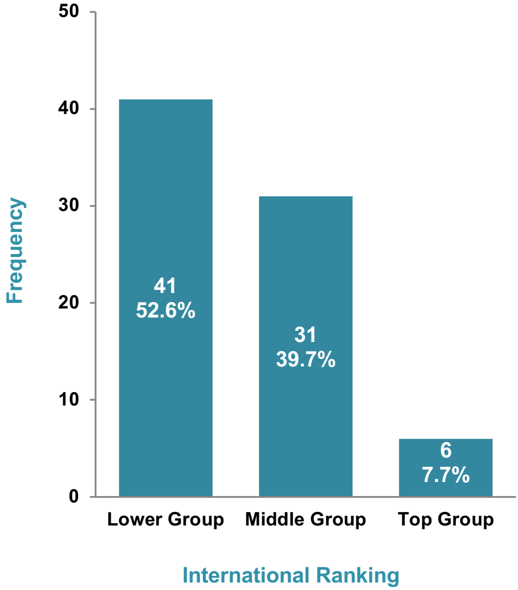


Fig. 21 Placement in international rankings – distribution (author's own).

The attractiveness for scientists and students is calculated for both by means of the ranking conducted by the German Institute for Economic Research (DIW). As described in the section on the hypothesis development, these figures encompass strong elements of subjectivity at several levels: the criteria for international students and scientists have been derived from secondary data and the City Ranking also involves a subjective assessment of relevant factors. Overall, taking into account the transparent and scientific development of the City Ranking, as well as the decision-making process of students and international scientists, it is deemed reasonable to use these data. Data show a strong differentiation in expected attractiveness for both scientists and students, whereas the effects for students are considered even stronger. This effect is caused by the focus of international students on the economic strength of the environment – which shows a high variance.

The level of internationality of the environments differs even more strongly: the ratio of inhabitants with a migrational background ranges from 3.12% to more than 30%. As the mean and median suggest, this effect is caused by a relatively small number of cities with lower ratios of migrants. This is a product of German history, which has led to an influx of numerous immigrants to the western part of the country, whereas the former East Germany, now referred to as 'new states' [*Neue Bundesländer*], was largely excluded from this effect.

With regard to international networks operationalized by the number of exchange and double-degree partnerships, less data was available. In the case of exchange partnerships, approaches of German universities differ significantly, ranging from 15 to 600 reported partnerships. The distribution is similar with regard to double-degree partnerships, a significant number of universities do not use this instrument, whereas the maximum recorded reaches 24 partnerships. International research, measured by the Leiden Ranking, shows 31 universities that are not listed in this ranking, leading to a median below 800, compared to the mean of above 1,900. Overall, the activities of universities with regard to international networks and international publication rankings differ strongly, ranging from small numbers or zero, to large numbers of network partners and a high number of international publications.

4.2 Inferential Statistics

Descriptive statistics deliver a good first sight and can produce additional questions, but they cannot explore cause-and-effect relationships, which is done by the use of multivariate statistics in this research.

In order to capture the complex connections between dependent and independent variables, a multivariate analysis is conducted first. In the next step, non-parametric analysis is conducted to capture relationships between the variables as well as differences between groups. In order to eliminate the impact of outliers, skewed distributions and possible non-linear associations, non-parametric tests were used for variables, which could not have been considered for multivariate analysis.

4.2.1 Multiple linear regression analysis

In order to create a model including several variables, a regression analysis of all defined variables was conducted against both dependant variables. Thus, it was tested whether the independent variables (predictors) had a significant influence on the dependent variables.

Only for the development of international students could a regression model be built, with $F(3,71) = 4.49$, $p = .006$ with $R^2 = .16$ and R^2 adjusted .124 being significant. Data were retrieved as follows: Degree of specialization was taken from the universities' names; for both other variables, official statistics were used. The following Table 10 presents the model coefficients as well as their test of significance.

Table 10 Model Coefficients, Dependent Variable: Change of Ratio of International Students 2010-2015

Variable	**B**	**SE(B)**	**ß**	***T***	***p***
Constant	3,873	6,038		0,64	.52
Degree of specialization	14,07	5,651	0,278	2,49	.015
International environment	-0,79	0,304	-0,313	-2,59	.012
Size in 2010	0,01	0,0003	0,32	2,59	.012

Notes: B = unstandardized regression coefficient; SE(B) = Standard Error of B; β = standardized regression coefficient

The multiple regression analysis delivers significant results for the change in ratio of international students for the three variables: the degree of specialization, the ratio of inhabitants with migrational background in the environment, and the number of students. However, in the case of the international environment, the sign does not have the expected value. Whereas the hypothesis assumes a positive correlation of ratio of inhabitants with a migrational background and the change in ratio of international students and researchers, the analysis presents a negative sign: meaning that stronger growth in ratio of international students takes place in environments with fewer people of a migrational background. The hypothesis that specialization has a positive impact on the development of the ratio of international students is supported by data. Finally, there is a correlation between university size and the increase in ratio of international students. Thus the hypothesis that big universities have a stronger increase in ratio of international students than small universities is supported. In this context, it is to be emphasized that outliers may encompass valuable attributes that can be used for other types of research: these are the Freiberg University of Mining and Technology, and Chemnitz University of Technology. All assumptions of a multiple linear regression model were tested and were met.

A second regression analysis delivers no significant results for the explanation of the development of the ratio of international researchers, $F(3,72) = 0.19$, $p = .90$.

4.2.2 Non-parametric analysis

Hypothesis 1 assumes that the existence of an internationalization strategy in 2012 has a positive impact on the ratio of international students and researchers. The information as to whether internationalization strategy was available in 2012 was not available for all universities; hence it was retrieved from the survey, an Internet research and additional requests to universities enquiring whether an internationalization strategy had been in place in 2012.

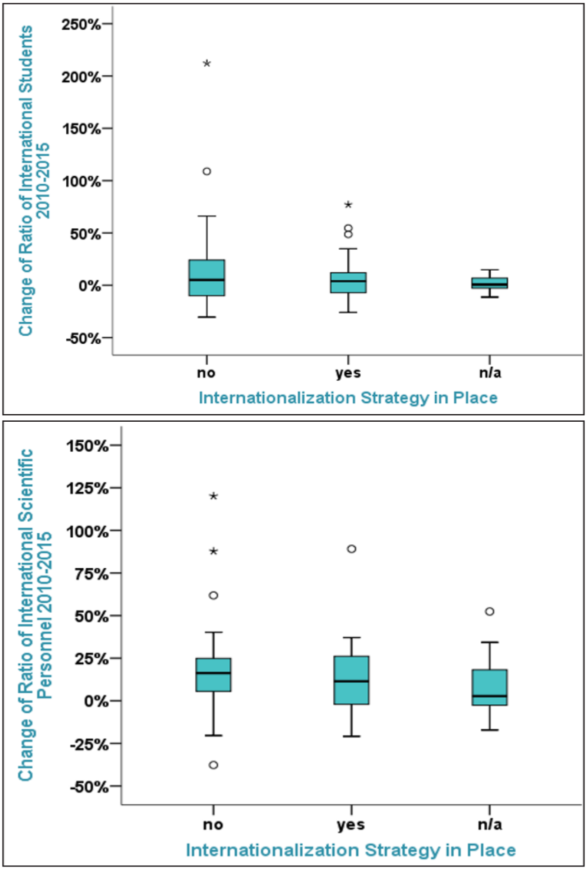
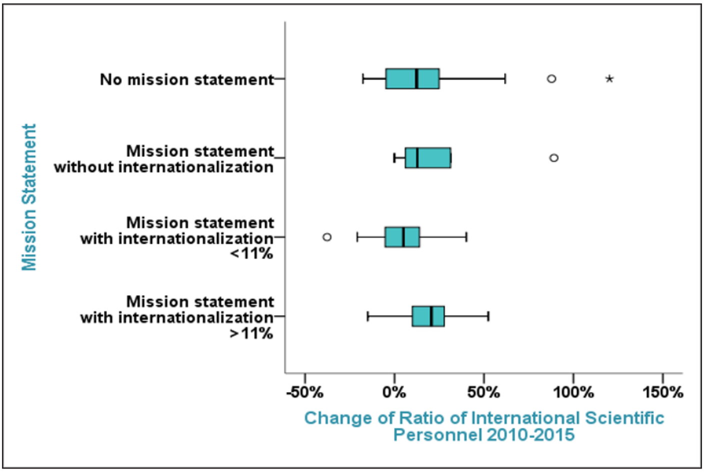


Fig. 22 Box plots on Hypothesis 1 (author's own).

The above box plots in Figure 22 show little difference between the internationalization outcomes between universities with and without internationalization strategy. Internationalization outcomes do not differ significantly between universities of the two groups, as tested with the Mann-Whitney test, $U = 502$, $p = .63$ for international students, and $U = 487$, $p = .50$ for international scientific personnel. So, Hypothesis 1 is not supported by data.

Hypothesis 2 assumes differences regarding the internationalization outcome between the content of the mission statements. As described above, to limit the impact of subjectivity, ordinally scaled variables were used, four ranking groups were generated. The differentiation between the groups was defined by the mission statement and its reference to internationalization. Consequently, the first group encompasses universities without a mission statement, the second one includes universities with a mission statement but without any reference to internationalization, the remaining group was differentiated by a threshold of 11% with reference to internationalization. The null hypothesis is represented by 'there is no difference in internationalization outcome between the groups'.

Figure 23 below shows box plots indicating the change in the ratios of international students and staff for the institutions in each of the four categories.



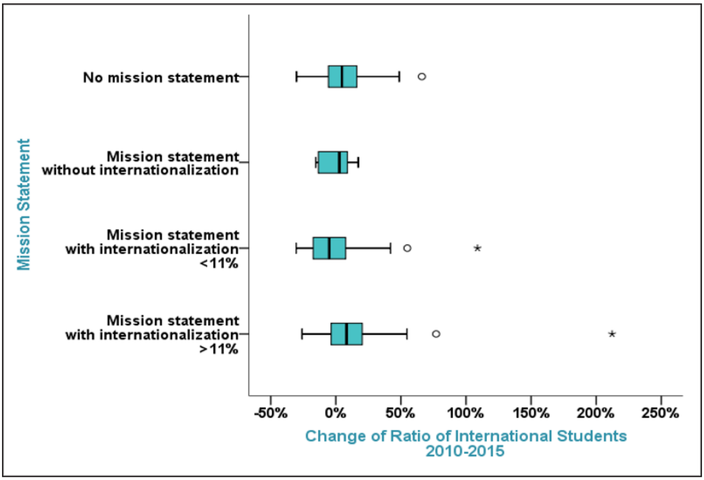


Fig. 23 Box plots on Hypothesis 2 (author's own).

The Kruskal-Wallis test looks for differences between groups regarding the two dependent variables and uses the χ^2 distribution as test statistic (Field, 2013, pp. 236-242). For the development of international students there were no significant differences, $\chi^2(3) = 3.6$, $p = .31$ and for the development of international scientific personnel, differences were found, $\chi^2(3) = 8.5$, $p = .037$. Thus, the content of the mission statement correlates to the change in ratio of international scientific personnel.

Hypothesis 3 assumes that university size correlates positively to both defined internationalization outcomes. Size is defined by the number of total students enrolled in the university in 2010. Both variables were taken from official statistics. With regard to the expected correlation between these two variables, it is to be emphasized that no assumption on distributions is made. Thus, both variables are transformed into rankings, creating ordinal variables. The Spearman's rho (r_s) coefficient measures the degree of association (Field, 2013, pp. 271-272). There was no significant relationship between university size and change of ratio of international students ($r_s = .02$, $p = .87$) and change of scientific personnel ($r_s = .04$, $p = .73$). Therefore Hypothesis 3 is not supported.

Hypothesis 4 assumed a correlation of the degree of specialization and the internationalization outcome, it has been included in the regression analysis and is not tested separately.

Hypothesis 5 assumes a correlation between the ratio of international scientific staff in 2010 and the growth of both international students and international scientific staff. Both variables were taken from official statistics. Again, the Spearman's rho correlation is applied. The correlation between the ratio of international scientific personnel in 2010 and the change of international students from 2010-2015 is not significant ($r_s = .04$, $p = .72$), but the correlation with change of ratio of international scientific personnel is negatively significant ($r_s = -.34$, $p = .003$). Hypothesis 5 is partially supported by data.

Hypotheses 6 and 7 assume that international networks represented by exchange and double-degree agreements correlate positively to growth in ratio of both international students and international scientific staff. Data on international networks was gathered in the survey. Again, the rationale of the previous hypothesis is applied and the Spearman's rho test is conducted. Table 11 below delivers the test statistics:

Table 11 Spearman's Rho Correlation between Exchange/Double-Degree Agreements with Change in Ratio of International Students and Scientific Personnel

	Change in Ratio of International Students 2010-2015	Change in Ratio of International Scientific Personnel 2010-2015
Number of exchange partnerships	-.45*	-.21
Number of double-degree partnerships	.33	.10

* $p = .016$

The only significant correlation exists between number of exchange partnerships and the change in ratio of international students, which is moderately negative, with $r_s = -.45$.

Hypothesis 8 assumes that the international exposure of the rector or president has a positive effect on the internationalization outcome of both international students and international researchers. Data were retrieved from Internet research using publicly available sources as described. In order to limit the impact of subjectivity, this project used an ordinally scaled variable whereby four ranking groups were generated to describe the international exposure of the rector. As described above, the groups are characterized as follows: universities that did not have any leaders with a minimum of four years in office during the period of evaluation were classified as 'in transition', the leaders who did not report any international professional experience were assigned to the 'lower group', the remaining cases where evenly divided, creating a threshold of a minimum of three mentions to qualify for the 'top group'. The null hypothesis is represented by 'there is no difference in internationalization outcome between the groups'.

Figure 24 below shows box plots indicating the change in the ratios of international students and staff for the institutions in each of the four categories:

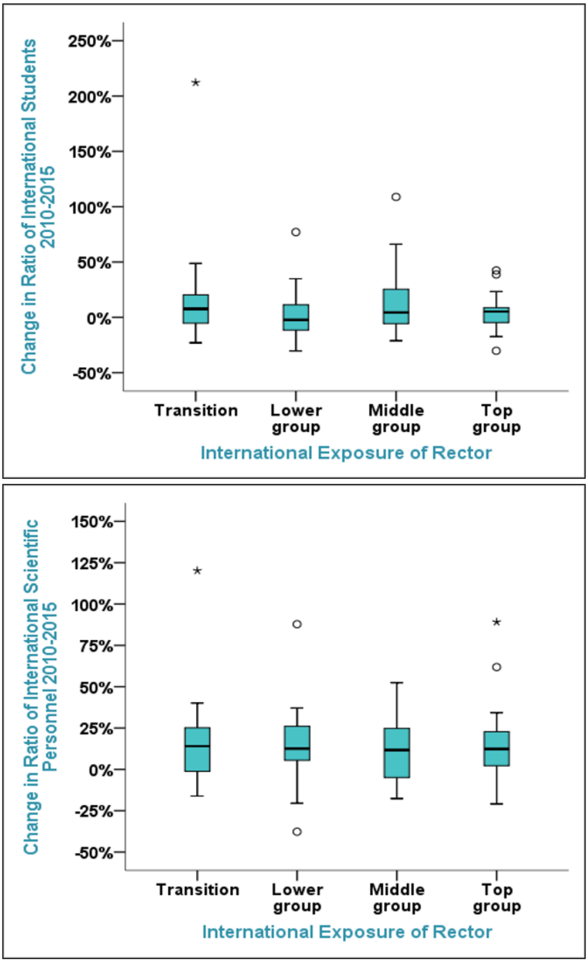
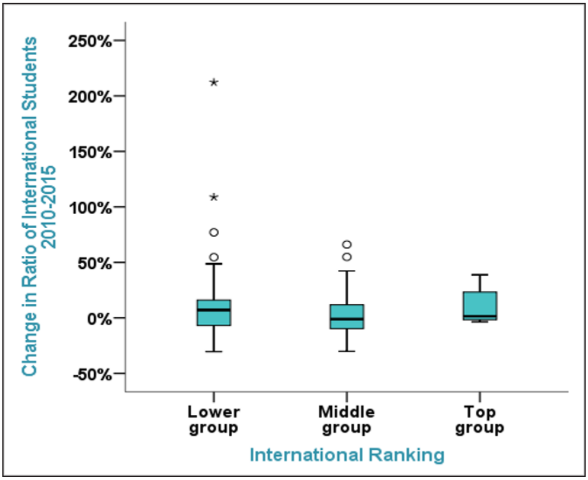


Fig. 24 Box plots on Hypothesis 8 (author's own).

The Kruskal-Wallis tests for both dependent variables were not significant for change in ratio of international students $\chi^2(3) = 2.35$, $p = .50$ and for international scientific personnel $\chi^2(3) = 0.37$, $p = .95$. There is therefore no evidence of differences between international exposure of the rector regarding the ratio of either international students or international researchers. Hypothesis 8 is not supported.

Hypothesis 9 assumes that universities placed in international rankings show a stronger increase in international students and international scientific personnel than universities that do not show this property. Data were retrieved from the websites of the institutions conducting the rankings. As described above, three groups of universities are established: the top group, having reached a minimum of one placement in the top 100 of the two pre-defined rankings, the middle group, having reached any placement in a minimum of one of the two rankings, and the lower group not having reached any placement in these rankings. The following Figure 25 presents the distribution.



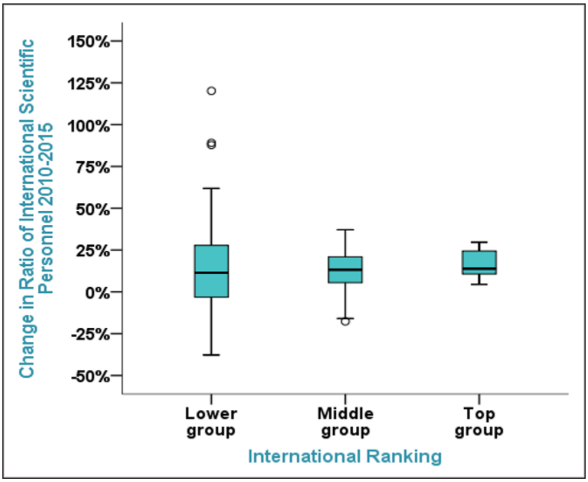


Fig. 25 Box plots on Hypothesis 9 (author's own).

Again, the Kruskal-Wallis test was used to assess differences between groups. For students the test was not significant, $\chi^2(2) = 1.44$, $p = .49$, as well as for scientific personnel, $\chi^2(2) = 0.17$, $p = .92$. Hypothesis 9 is not supported.

Hypothesis 10 assumes a correlation between the Leiden Ranking and the growth in ratio of international scientific staff. The Leiden publication ranking delivers a numerical value for ranked universities, with data retrieved from the official website. The Spearman's rho correlation showed no evidence for associations, for students $r_s = .10$, $p = .40$ and for personnel $r_s = .06$, $p = .62$. Hypothesis 10 is not supported.

Hypotheses number 11 and 12 assume a correlation of properties of the environment in terms of attractiveness and internationality and the development in ratio of international students and scientific staff. All data were retrieved from official statistics. The latter hypothesis is included in the regression model and thus not tested univariately. All correlations were not significant, as the correlation coefficients show in the following Table 12.

Table 12 Spearman's Rho Correlations of Attractiveness with the Dependent Variables

	Change in Ratio of International Students 2010-2015	Change in Ratio of International Scientific Personnel 2010-2015
Attractiveness for scientists	-.06	-.07
Attractiveness for students	-.01	.02

Hypotheses number 11 and 12 are not supported.

Hypothesis 13 assumes a self-reinforcement of internationalization of students and researchers. A correlation between the ratio of international scientific staff in 2010 and the growth between 2010 and 2015 could be shown – however, not in the expected direction. All other correlations were not significant. Table 13 below presents the correlation coefficients:

Table 13 Spearman's Rho Correlations of Ratios of International Students and Scientific Personnel in 2010, with the Dependent Variables

	Change in Ratio of International Students 2010-2015	Change in Ratio of International Scientific Personnel 2010-2015
Ratio of international students 2010	.05	.01
Ratio of international scientific personnel 2010	.04	-.34*

* $p = .003$

4.3 Discussion

This chapter aims at building a model by finding a significant correlation between the assumed factors of impact represented in the hypotheses and the defined internationalization outcome, the growth in ratio of international students and researchers. A significant correlation between the development of international students and the factors of specialization, internationality of the environment and the size of university in 2010 could be shown. The hypotheses expected the following correlations: Degree of specialization, size and internationality of environment are expected to correlate positively to the internationalization outcome – the model supports the first and second hypothesis including the direction of impact. The third aspect, the internationality of the environment, delivers a negative correlation.

This can be interpreted as follows: Referring to the section on the relation between size and internationalization, it seems an adequate conclusion that internationalization does require a significant amount of resources, typically available in big universities. The finding that the change in the ratio of international students correlates negatively against the level of migrational background is counterintuitive and may reveal the desire of international students to study in an environment different from home. Especially students from large countries with a strong tendency to study abroad (China and India) may face the situation of studying with a high number of compatriots in another country – not the desired outcome for studying internationally (Barker, 2015, October 19). Additionally, students from large nationality groups are sometimes reported to be reluctant to interact with other nationalities, even including faculty (Horstmann, 2014, December 29).

This finding provides implications for internationalization strategies for universities in cities with lower ratios of people with migrational backgrounds, which could be used in their marketing strategies. Additionally, it creates the case for an active diversity management, in the sense of balancing out influences from single countries in order to provide a diverse student body. The Federal Law Against Discrimination (2017) creates a challenging environment: it is against the law to decide upon origin, in the sense of defining nationality target ratios, or limiting ratios of students or researchers from one nation within the student body or faculty (Federal Ministry of Justice and Protection of Consumers [*Bundesministerium für Justiz und Verbraucherschutz*], §1, 2017, May 24).

The finding regarding specialization can be used by specialized institutions to emphasize their specific competence in certain fields, as this distinction is regarded as highly valuable by international students. The limitation of the approach of this research is presented below to encourage additional research on this aspect.

The finding that the ratio of international scientific staff has a negative correlation to its further development can be interpreted in several ways: firstly, it may represent the effect of decreasing growth, as the method of evaluation (measuring the change in ratio rather than ratio itself) favours universities with smaller initial ratios of international staff. Secondly, the internationalization of scientific staff is not a self-reinforcing process. Based on the assessment that the behaviour of scientific staff in the international arena is under-researched, this aspect represents an implication for further research: What motivates international researchers to join German universities? Additionally, the negative correlation implies that international scientific staff may opt for less-international universities in order to obtain a unique position.

With regard to the hypotheses that did not deliver significant correlations, the following aspects should be taken into account and may provide implications for further research.

The internationality of leaders and their impact on the internationalization outcomes of their institutions did not show a significant correlation. As discussed in the section on hypothesis development, there could be a plethora of possible reasons behind this finding. Given the complexity of universities in general, and German universities in particular, coupled with the high degrees of freedom of professors, the role and the impact of leaders may require additional research. This effect is strengthened by the fact that the 16 states in Germany represent 16 different legislations. Additionally, as stated above, the relevant research question is the mindset of the leader – the leaders' previous experiences can only serve as a proxy to estimate attitude towards internationalization. This research aims at overcoming these shortcomings partly by interviewing key leaders of German universities to inquire their attitudes on the topic. Hambrick (2007) himself criticized this view by arguing that demographic criteria do not reflect the actual thought-process of executives (p. 327).

Rankings and quality of students

The placement of German universities in international rankings did not correlate significantly to the growth ratio of international students and researchers. In this context, it needs to be underscored that this research deliberately confined itself to the quantitative development. Additional research could evaluate the impact of international rankings on student quality, measured, for example, by completion rates or employment after graduation. This idea is in line with the next phase of the Higher Education Pact II 2020 [*Hochschulpakt II 2020*] incentivizing universities on completion rates (Federal Government and State Governments of the Federal Republic of Germany [*Bundesregierung der Bundesrepublik Deutschland*], 2017, February 21) and Pinkwart's (2014b) suggestions for the reform of university funding (p. 36).

International partnerships

The finding that the number of exchange agreements correlates negatively to the growth in ratio of international students is also counterintuitive, as the hypothesis reasoned that a larger number of agreements facilitate the influx of additional international students. Given the limited number of responses ($N = 28$), the result for strategic partnerships needs to be interpreted carefully. However, it may imply that a large amount of exchange agreements overstretches the resources of a university and that a more focused approach in line with strategic partnerships delivers more growth in international student enrolment.

Strategies for internationalization

The quantitative analysis did not show significant correlation of internationalization strategies. Referring to strategy as an emerging pattern of actions (Mintzberg et al., 2005, pp. 175-230) or as the absence of strategy as a virtue (Inkpen & Choudhury, 1995, pp. 317-319), this aspect represents an implication for further research: universities that have been successful in the process of internationalization without a strategy to be evaluated with regard to their way of conducting the process. On the other hand, universities with a strategy and sub-par internationalization outcomes could be investigated in terms of strategy process, as well as its implementation.

Impact of mission statements

The impact of mission statements on the internationalization of international scientific personnel could be shown; mission statements can thus be interpreted as signals to international researchers providing information on the relevance of internationalization to the respective university.

Impact of international scientific staff

The fact that international scientific staff did not show a significant impact on the development of the ratio of international students can also be interpreted in several ways: Firstly, there is no robust theory on the preference of international students with regard to diversity of scientific staff. The impact of scientific staff on the internationalization outcome may depend upon factors other than nationality, for example, general attitude towards international students and level of engagement.

Impact of the environment

The impact of the environment of the university could not be shown in this research. One reason could be that the selected measurement of the city's added attractiveness, largely measuring economic wealth and derived criteria, does not capture the relevant criteria for international students and researchers. Consequently, this aspect delivers implications for additional research in the field of surveys among international students and researchers with regard to their decision-making process when selecting their German university.

Limitations and implication for further research

The impact of internationalization strategies were evaluated on a binary basis. Like all dichotomous approaches, this one has to accept a simplification with regard to types and quality of strategies. However, in absence of a generally accepted standard for internationalization strategies, it seems a legitimate simplification to evaluate whether the existence of an internationalization strategy in itself has an impact on its outcome. This research makes the attempt to overcome this limitation in the next chapter, which presents a qualitative approach including qualitative inquiries on the aspect of internationalization strategy. In this context, the idea that strategy differentiates organizations by process and not by existence represents an implication for further research.

One limitation concerns the decision-making processes of international students and researchers. In the case of international students, a number of studies exist; in the case of international scientific staff, it is assessed that this field is under-researched (Bedenlier & Zawacki-Richter, 2015, pp. 185-191), and that additional research on these processes and relevant criteria could deliver valuable insights for research and practice.

The aspect of specialization has been operationalized by the university's name and whether it indicates a degree of specialization. Based on the finding that specialization does facilitate internationalization, additional research could refine criteria for specialization. Primary data on the perception of international students and scientific staff with regard to specialization could deliver valuable insights for universities and their design of internationalization strategies.

With regard to the internationality of leaders, the following shortcomings had to be accepted: The CVs generally have been published by the rectors themselves or on their behalf, which may induce a bias of self-perception. However, as international exposure is generally perceived as positive, there is an incentive for each one to display their international exposure in full. However, if a rector decides not to mention international exposure, it could be interpreted as a value judgment with regards to the relevance of internationalization. The number of internationally relevant aspects was counted; the quality of international exposure was not taken into account; the method counts the elements of international exposure, defined by international professional experience. This could be overcome by further research, which could develop a model on the evaluation of different types of international exposure and their impact on leaders.

The relevance of international networks has been presented; however, the quantitative measurements were focused on formalized agreements. Networks can be interpreted in many ways, including networks related to particular fields of research. Pinkwart and Czinkota (2012) assess the relevance of international, transdisciplinary networks for the generation of new knowledge and its transfer (p. 259), the contribution of internationalization to this type of university represents an additional implication for further research.

The dimension of teaching quality could not be assessed, as this research has focused on quantifiable aspects of internationalization that are documented by presently available statistics at the level of the single university. As presented above, no data on completion rates nor on employment of graduates are available at the level of the single university. Given the relevance of these aspects, additional research on the relationship of quality in research and teaching, and outcomes in terms of completion rates, research quality and technology transfer, will deliver valuable insights for research and practice.

Overall, it needs to be assessed that internationalization of German universities seems far more complex than the suggested model. Results suggest that entirely different approaches – some of them hard to capture by means of business theory – may deliver good results in terms of internationalization. This creates the case for the next chapter, which analyses interviews with leaders of six German universities in order to at least partly close the gap presented in this part by applying methodological triangulation by analyzing the same phenomenon by means of different methods.

5 Exploring Internationalization Approaches for the Future, Using Qualitative Methods

This research follows the assumption that leadership has a significant impact on organizational behaviour in internationalization, based on the theory developed by Hambrick and Mason (1984), and Hambrick (2007). However, the quantitative approach in the previous chapter could not show a significant impact of international exposure in leaders on an internationalization outcome in the defined sense. Consequently, this chapter aims at exploring the perspective of leaders towards the internationalization process of universities: How do leaders perceive their role in the internationalization process? Which underlying motivations drive them? Which rationale do they follow in shaping the internationalization process of their university? And what is their vision for the further development of internationalization, in general and within their university?

The HHL Graduate School of Management has developed the Leipzig leadership model (Kirchgeorg et al., 2016), which serves as a reference point of this chapter. As outlined in the previous chapter, university leaders – in the German system, 'directors' or 'presidents' – have been assigned a significant degree of influence and are hence the source of information for this chapter, given the task of capturing comparable information from leaders of key universities.

5.1 Research Goal

There are several origins for defining the research goal: As stated in Chapter 3, it is assumed that leaders have an impact on the behaviour of their organizations (Hambrick & Mason, 1984; Hambrick, 2007), that the formal authority of leaders in German higher education has been strengthened (Bogumil, 2013), and with the further assumption that the leaders' subjective mindsets predetermine their actions (Goll et al., 2001). Furthermore, as outlined in the

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Schriftenreihe der HHL Leipzig Graduate School of Management,
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previous chapter, the quantitative approach failed to explain the impact of strategy and leadership on internationalization. Following Hambrick's (2007) critique of his own approach in emphasizing that demographic data on leaders are only proxies – the goal is to capture and describe their thought processes and mindsets (p. 337). This research aims at inquiring into the underlying motivations and ideas of leaders of key universities.

There is a research gap in exploring the mindset of leaders in German higher education: The environment of internationalization represents particular challenges to leadership, as it relies on personal relationships (Kanter, 1994, p. 100), with personal interaction between faculty having always played a strong role in the internationalization process (Pinkwart & Czinkota, 2012, p. 257). The field of tension between academic freedom and a strategic approach to internationalization has been described by Hahn (2004, p. 338) and Neave (1992, December 10). No study could be found on the role of academic leadership in this process, relating to the balancing out of strategic goals of the organization and activities of internationalization by individual professors, and the placing of internationalization into the larger context of university leadership.

Consequently, this chapter aims at deciphering aspects of strategy and leadership in the context of internationalization of German universities – and to contributing to closing the research gap with regard to the role of leaders in the internationalization of German universities, based on their own perception. It is the goal of this part to inquire into the subjective ideas, concepts and theories of leaders in order to deliver additional explanations for organizational behaviour in the context of internationalization.

5.2 Methodology

5.2.1 Research design

In order to meet the above-described requirements for this part, qualitative research methods – more precisely, semi-structured face-to-face interviews – have been applied within a mixed-method approach, as suggested by Robson and McCartan (2016, p. 279). Whereas the quantitative research applies a deductive approach, deriving general theory and testing them against reality, the qualitative research of this part explores the leadership and strategy in the internationalization process. Qualitative research is generally inductive by nature (Creswell, 2013, p. 175), and qualitative interviews particularly incorporate the explorative aspect of this type of research (Silverman, 2011, p. 167). Given the status of the interviewees in terms of expertise, knowledge and status, it is deemed adequate to derive hypotheses for generalizations from the interviews.

Qualitative interview data deliver rich, full and real accounts of people and organizations – creating the challenge of arranging these impressions in order to create theory (Robson & McCartan, 2016, pp. 465-466). The Leipzig leadership model delivers the frame for interpreting the interview data and thus helps to reduce subjectivity, as is described in the section on quality assurance (see section 5.2.1.4.). Additionally, the Leipzig leadership model has been created as an open structure with regard to plurality of interpretations, and to inviting a scientific discourse towards applying specific meaning to the general categories of the model (Kirchgeorg et al., 2016, p. 14). This research delivers practical applications of the dimensions of the Leipzig leadership model within the context of the internationalization of German universities.

Qualitative research is considered particularly valuable if the context has a high impact, which can be assessed in the internationalization of German universities (Robson & McCartan, 2016, pp. 18-19). Interviews provide features exceedingly useful to the research design: university leaders' subjective ideas, concepts and theories cannot be observed directly and it is impossible to derive this information from secondary sources. On the other hand, interviews involve the risk of error due to interviewer variability – which is reduced by standardization (Bryman, 2016, pp. 210-215). However, fully standardized interviews would not leave room for the additional insights and ideas generated in the interview, and were deemed inadequate when interviewing prominent leaders of the universities. Hence, semi-structured interviews were used. Contrasting with structured interviews, this method leaves room for individual-specific answers by not providing predetermined answers. Gläser and Laudel (2010) consider the questionnaire of a semi-structured interview the framework that ensures that all relevant information is gathered in a similar way, preventing the interviewer from changing the interviewing style during the course of the interviews (pp. 143-144).

The following properties of interviews need to be taken into account, as discussed below:

- Person-to-person interviews require a large quantity of resources at several levels: appointments need to be made, may be changed at short notice, require travel time and budget, as well as needing transcription, which is discussed below (Opdenakker, 2006, pp. 2-3; Robson & McCartan, 2016, p. 281). Given that this type of interview corresponds well with the research question – and with the absence of an alternative method of research to capture this type of knowledge – it helps to close the research gap by delivering insights into the processes of prominent leaders, and the resources can be seen as well-invested.

- Silverman (2011) assesses that interviews – due to their explorative character – have the potential to decipher individuals' attitudes and values (p. 167). This aspect is strengthened by the property of interviews entailing synchronicity of time and place, enabling a direct interaction between interviewer and interviewee (Opdenakker, 2006, p. 2). Interview data is a joint production of interviewee and interviewer based on the interview situation, the questionnaire and the relationship. Qualitative interviews encompass reciprocity by engaging in clarification and second questions (Galletta, 2013, pp. 76-77).
- Trust is essential to qualitative interviews, and is to be established through structure (questionnaire to be sent beforehand, transcription to be sent in for approval) and personal interaction, mainly through establishing rapport, enabling the participant to feel comfortable and to show adequate interaction. One essential element is considered to be the physical environment of the interview; King and Horrocks (2010) suggest a place of comfort for the interviewee (pp. 42-48). In order to meet these requirements, all interviews took place in the offices of the interviewees; the further processes are described below.
- Research encompassing the interaction of people automatically involves issues of bias, as the researcher is necessarily an 'instrument of research' (Robson & McCartan, 2016, p. 157). Kvale and Brinkmann (2009) present the concepts of unbiased research and reflexive objectivity: The freedom from bias encompasses reliable knowledge undistorted by subjective belief and prejudice; reflexive objectivity requires the researcher to reflect his own position in producing the results. This latter view accepts personal bias as inevitable – and aims at gaining insight into the bias, thus making it transparent and creating sensitivity towards the source of the bias (pp. 244-245). Helfferich (2011) denotes that a researcher entirely free from prejudice and completely neutral is a fiction; she agrees to using the concept of openness, in regard to consciously perceiving the existing knowledge of the researcher and to consciously employing selective attention (pp. 116-117). Sutton and Austin (2015) denote that the concept of reflexivity requires researchers to reflect upon and make their own position and subjectivities (world view, perspectives, biases) transparent, to enable readers to better understand the filters through which questions were asked, data were gathered and analysed, and findings were reported. In this view, bias and subjectivity are not generally negative but they are unavoidable; as a result, it is best that they be articulated upfront in a manner that is clear and coherent for readers (p. 228).

This research shares their assessments and fully accepts the existence of personal bias; it employs the suggested method by reflecting the personal situation of the researcher, thus making it transparent.

- **Reflection in the research process:** King and Horrocks (2010) nominate the revealing of hidden agendas, with researchers taking a critical view on their own theoretical lenses, and actively presenting their own background, which is likely to have influenced their view on the subject (p. 133), as is presented in the next bullet point.
- **Reflection of researchers' bias:** The researcher himself earned his first academic degree from a public university (Technical University [TU] of Berlin) in the early '90s, thus before the described reforms of German Higher Education. Professionally, he has been engaged in consulting and private higher education, since 2010 in the field of international recruitment for a private university. While working in the field of consulting, the author has completed a number of trainings in the field of process facilitation and coaching – with a strong focus on conversation analysis. Consequently, he is closely familiar with incentive structures of privately operated institutions – and is focused on obtaining knowledge on structures and their effects on public institutions from literature, interaction with the supervisor, interviews and informal conversations on the topic. The research is conducted at a private university at the Chair of Innovation Management and Entrepreneurship. Having deliberately chosen HHL Leipzig Graduate School of Management as the University for this dissertation, the researcher endorses the mission statement of the institution, including the dimensions of responsibility, entrepreneurship and effectiveness (HHL Graduate School of Management, 2017). It is thus to be conceded that the author generally views entrepreneurship, competition and innovation as positive and contributing to progress. The author declares not to have any personal interest with regard to the interviewees and related universities. The author consequently aims at deliberately employing this background towards evaluating the differences between public and private higher education, and at maintaining awareness of this background and a possible bias.
- **Theory-based, transparent evaluation of interviews:** Following Kvale and Brinkmann (2009), and Helfferich (2011), a risk of bias is included in the evaluation: if categories are derived by the researchers, these are likely to reflect personal views and opinions. Consequently, this research employs the method of qualitative data analysis and hierarchical coding developed by Mayring (2015). Categories are taken from the Leipzig leadership model, with categories and codes displayed in the Appendices. Thus, a theory-based, transparent approach to interview evaluation is achieved.
- **Derivation of questionnaire from existing literature and first part of this research:** The process of questionnaire development is presented below in order to make the thought processes transparent.

- **The selection of participants was done according to the principle of purposive (also referred to as theoretical) sampling.** The idea is to purposefully select cases to create additional knowledge and to include different types of institutions according to expected criteria of impact (Robson & McCartan, 2016, p. 275). The presentation of results differentiates between general consensus on certain statements and different perspectives on the issue, as well as personal opinions expressed in the interviews.

Fulfilling Patton's (2015) requirement for qualitative research in revealing im- and explicit assumptions (pp. 677-678), the following assumptions are made with regard to interview data: the interviewees, all in the status of rector or president of their university, are in the position of significantly influencing the organizational approach to internationalization. The interview data – as approved by the interviewees – reflect the official positions of the universities and the interviewees. Additionally, this research fully acknowledges that the researcher makes implicit assumptions – which have been reflected by presenting the researcher's bias.

5.2.1.1 Selection of participants and sampling method

The explanatory power of qualitative interview-based research largely depends on the selection of participants. Gläser and Laudel (2010) emphasize the relevance of interviewees who determine kind and quality of information generated through interviews. The authors outline the ideal situation – in which the interviewee disposes of all relevant information – and assume that these individuals may not be available for research due to time constraints (p. 117). Given that the objective of this section is to capture the perspective of leaders on the internationalization process, the highest-ranked official of a university delivers the ideal interviewee, integrating knowledge of the university system in general and their university in particular.

Littig (2009, p. 119) adds another differentiation by introducing the term **elite interview**, defined by the interviewee being part of senior management, having considerable experience, possessing a broad network, considerable international exposure and direct functional responsibility. Rectors or presidents of reputable German research universities unequivocally belong to this group. Thus, the interviewees represent a combination of knowledge and power, which makes their views and perspectives particularly relevant to their organization.

Saunders (2012) emphasizes the limiting factor of gaining access to participants who can contribute substantially to the research question. This aspect is particularly relevant to leaders of German universities: As described above, German universities – being a part of the research landscape – are often subject to research enquiry, and their rectors, like leaders in other fields, are often reluctant to invest time in enquiry and to reveal their thought processes (Hambrick, 2007). For this research, this challenge was solved through the network of the supervisor who connected the author to university leaders.

Qualitative research does not claim universal validity, but generalizability. The selection of interviewees follows the pattern of the principle of contrasting ideas and concepts, with this type of research aiming at selecting institutions and individuals that represent contrasting properties, thus using the concept of theoretical sampling (Flick, 2014, pp. 170-174). Although not aiming at selecting a representative sample, this research did make the attempt to include institutions characterizing different representations of key criteria: According to Saunders' (2012) classification, this approach can be considered a 'purposive, heterogeneous' sampling, aiming at revealing key themes (pp. 42-44). As suggested by Alvesson and Ashcraft (2012, pp. 246-247), this research selected interviewees according to the research question: Which interviews would provide diverse and valuable insights with regard to internationalization of German universities? Following the systematic approach of this research, the sampling strategy aims at a balanced portfolio of participants with regard to specialization, size of institution, environment, and gender of leader. The qualitative analysis of interview data is inductive in nature – and the term 'qualitative generalization' captures the nature of qualitative research in focusing on particularity instead of generalizability. Its value is thus derived from the specifics of the objects studied and the particular circumstances described in the research (Creswell, 2013, p. 175; pp. 192-193).

Literature generally emphasizes the challenges of obtaining access to interviewees, especially to individuals in senior positions who can deliver valuable and first-hand information (Gläser & Laudel, 2010, p. 117; Littig, 2009, p. 119). In the context of this research, this was solved through the network of the supervisor and the university. Given this rich network, a sampling strategy was possible according to the criteria mentioned above: size of university, gender of leader, environment, and degree of specialization.

5.2.1.2 Questionnaire design and interview

Gläser and Laudel (2010) assert that an interview guideline should not start with the question but with informing the interviewee about the further process (pp. 143-144) – contrasting the funnel approach of asking the questions first and revealing their purpose later (Kvale & Brinkmann, 2009, pp. 130-132). This research employs the open approach of setting the frame at the beginning of the interview. This approach was further emphasized by sending out the interview questions when making the appointment, in order to avoid surprises and to offer the option to prepare the answers.

This research defined the following categories as essential for the future development of the internationalization of German universities:

- internationalization, the view of leaders and organization, underlying motivation, targets and relationship towards overall organizational goals
- leadership, role model of leader and personal motivation
- environment according to the definition of the leader, impact of markets for international students and researchers
- technology and impact on internationalization, general attitude towards it
- strategy and vision, use of strategy in the university, role of central leadership versus faculty-driven activity for internationalization, and vision for internationalization at the university in 2025

The opening segments of the semi-structured interview should establish a level of comfort, and encompass broad questions in order to start the flow of the conversation (Döring & Bortz, 2016, p. 48). This research aims at combining a sensible and consistent presentation of a theory-based questionnaire set up with the invitation for dynamic conversation (Flick, 2009, pp. 156-158). Given that all interviewees are both experienced researchers and senior leaders, they are particularly familiar with procedures of research and interviews. Consequently, this first phase was rather short and the interview questions could be presented very quickly. Gläser and Laudel (2010) recommend placing questions in an order supporting the interviewee's focus on the topic, as every question triggers thoughts and thus creates cognitive contexts (p. 146). In order to do so, Altbach's (2013) well-known thesis, *The International Imperative in Higher Education* (pp. 1-11), was combined with the question of the resistance against internationalization in the university. Acknowledging that internationalization encompasses change, as well as the fact that change generally arouses a certain amount of resistance, this needs to be carefully included in the process (Pinkwart et al., 2014, p. 107). These aspects correspond well with the Leipzig leadership model and reflect the categories of effectiveness, entrepreneurship, purpose and responsibility.

The next section aimed at receiving a self-assessment of leaders with regard to their role in the internationalization process, starting with the inquiry for leaders to self-assess their role in the internationalization process. In order to trigger answers within business contexts, a semi-open question including an enumeration of titles from business was offered (Döring & Bortz, 2016, p. 588). Acknowledging the relevance of personal values, motivations of leaders and their leadership style towards organizational behaviour (Bass & Bass, 2008, pp. 484-485; Kirchgeorg et al., 2016, pp. 23-24), the next question asked for their personal key motivation underlying and accompanying the internationalization. This section concluded with the query for self-assessment in terms of leadership style along the scale of participative versus directive. The scale question was used to enable a quick answer – expecting that a number of interviewees would reject the simplification and explain their approach towards leadership in the academic environment. The questions of this section can be subsumed under the categories of 'purpose' and 'responsibility' in the Leipzig leadership model.

The assessment of the relevant environment is considered a key step in setting up strategy, and the definition of the relevant environment has a high impact on the strategies chosen (Morrill, 2010, pp. 156-157; Rue & Holland, 1989, p. 103): The section opened with an inquiry for leaders to define their relevant environment, before asking for their view on international competition in the form of rankings, the Excellence Initiative and the relevance of markets for international students and researchers. These questions cover the category of 'entrepreneurship' in the Leipzig leadership model.

Reflecting the expected huge impact of technology on education in the future (HFD, 2016b, pp. 13-30; Pinkwart & Czinkota, 2012, p. 255), the next section covered the perspective of leaders on this issue: challenging the assessment that German universities are reluctant to invest in massive open online courses (MOOCs). The section opened with a question on whether technology has an impact on the internationalization process of the university and concluded with a question as to whether learning technologies are actively supported by the organization. Technology and the technology-induced change are part of the category of 'entrepreneurship' of the Leipzig leadership model.

The final part of the interviews treated aspects of strategy: challenging the assessment that German universities are not used to creating strategies (Hahn, 2005, p. 26), which is in opposition to Keller's (1983) stipulation for university strategies (p. 76; pp. 117-188). This section opened with a question on the use of strategy in the organization. Contrasting a strategically aligned internationalization process to faculty-driven internationalization (Pinkwart & Czinkota, 2012, p. 257), the next question asked for leaders' approach towards integrating both faculty- and strategically driven steps of internationalization. The final question asked leaders for their vision for the year 2025 with regard to internationalization of their university. The underlying idea was to take a foreseeable year in the future, but most probably after the expected tenure of the leader, thus asking for a vision rather than an irrationally constructed forward-projection of the *status quo*. These questions can be subsumed under the category of 'effectiveness' in the Leipzig leadership model.

The following Table 14 presents the content of the questionnaire, its grounding in literature, as well as the corresponding aspects in the Leipzig leadership model.

Table 14 Questionnaire: Used Sources and Correspondence to the Leipzig Leadership Model

Aspect	**Rationale**	**Source**	**Topics**	**Corresponding Category in the Leipzig Leadership Model**
Internationalization	The perception of internationalization and the underlying motivation have a high impact on the process; targeted definition is essential for the management process	Altbach (2013), Pinkwart, Abu El-Ella, and Bessant (2014)	the general attitude in university towards internationalization organizational goals and relation to overall targets	Entrepreneurship, Purpose, Responsibility
Leadership	Mindset of leaders has a high impact on organizational actions and performance	Hambrick (2007)	self-assessment of leaders with regard to leadership role model personal motivation for internationalization	Purpose, Responsibility
Environment	Framework conditions and positioning towards international competition have a significant impact on organizational behaviour	Rue and Holland (1989), Martinez and Wolverton (2009), Morrill (2010)	definition of relevant environment impact of rankings and competition	Entrepreneurship
Technology	Technology is expected to have the potential to change higher education fundamentally	Pinkwart and Czinkota (2012), HFD German Forum for Higher Education in the Digital Age (2016, pp. 13-30)	impact of technology on internationalization strategy active engagement in learning technologies	Entrepreneurship
Strategy	Strategy as expression of organizational proactivity and process to align actions according to organizational goals	Keller (1983), Hahn (2005)	use of strategy as an instrument of management field of tension between strategic alignment and faculty-driven internationalization	Entrepreneurship, Effectiveness

Given the explorative character of this final part, the vast majority of questions were open. Open questions represent a number of advantages, such as of respondents answering in their own wording, an invitation for unusual responses, preventing the suggestion of answers, and are thus valuable for creating insights into the thinking of leaders (Bryman, 2016, p. 247). Open questions are asked in a predetermined order – delivering focus on the research question. Flexibility is added, as further inquiry into aspects of particular interest is included in the approach (Bryman, 2016, p. 212).

Gläser and Laudel (2010) present the following rules for interviewing: (a) do not disturb the flow of the interviewee, do not interrupt, and allow pauses; (b) be flexible in asking questions, allowing the interviewee to make the transition to additional questions – the authors suggest rather modifying the questions than creating an unnatural atmosphere of conversation; (c) check back on aspects not understood by the interviewer; (d) ask for details: it is unrealistic to expect that all questions deliver answers in the intended scope and detail; (e) post short and direct questions; (f) show competence, and (g) avoid valuation (pp. 173-177). These recommendations were followed while conducting the interviews: the researcher was able to fall back on his knowledge on conversations from previous trainings; additionally, he took a number of coaching sessions to prepare for these interviews in particular. As all questions were sent to interviewees beforehand, the interviewees actively shaped the conversation by adding additional information, referring to the axis of previous questions whenever their interpretation of the question created an overlap in context between the questions. In cases of differing interpretations of questions between interviewee and interviewer, questions were clarified and supportive questions where posed. Given the scientific character of this research, the requirement to show competence and grounding in theory created the necessity to outline the background of the questions – thus the questions represent a compromise between these requirements and the general goal of presenting short and concise questions. The choice of the subject and the opportunity of interviewing high-ranked senior leaders created a general background of appreciation and esteem for German universities and their internationalization efforts, which was expressed during the interviews, and which may be interpreted as a slight violation of the requirement of non-judgment.

5.2.1.3 Data gathering and data analysis

All interviews took place in the timeframe between January and May 2016. Nine university leaders had been invited to participate, of which six interviews could be used for the research, the other interviewees held different positions in their universities and would thus distort the data due to incomparability. All other interviews and conversations have been used to generate background information to sharpen the research. All interviews were conducted personally, face-to-face, with an average duration per interview of 50 minutes. As described above, all interviews took place in the offices of the interviewees; the initial contact was established by the supervisor, the appointments coordinated between the secretary of the interviewee and the researcher himself.

Literature discusses four ways of recording: audio or video recording, note-taking, and remembering, emphasizing the advantages of ordinary audio recordings via digital voice recorder (Kvale & Brinkmann, 2009, pp. 178-180). Gläser and Laudel (2010) discuss the advantages and disadvantages of audio recordings, with the main disadvantage being in creating an unnatural atmosphere of conversation, violating the general rule of creating a natural conversational atmosphere. Overall, the authors consider audio recording as quasi-inevitable, as reports from memory and hand-written note-taking transcripts bear significant risks of omission and simplification (pp. 157-158). In this research, all interviews were audio recorded, with the transcript sent to the interviewees for approval.

Gläser and Laudel (2010) discuss and reject the option of listening to the audio recording and only transcribing the sections that the author considers relevant, for the reason that no robust rules for confirmation exist, and that this method would add a nontransparent layer of subjectivity (p. 193). Literature underpins the time and resources needed for transcription and presents significant advantages of the researcher conducting it personally: the process of transcription is likely to reawaken the social and emotional nuance of the interview, providing an additional learning opportunity on the views of the interviewees, and is likely to enhance the quality of the content analysis (Kvale & Brinkmann, 2009, pp. 180-182). In order to seize this learning opportunity, all transcriptions were conducted by the author.

With regard to the use of transcriptions, there is no generally accepted norm; a high level of detailed analysis includes pauses, emphasis, intonation and emotional expressions – the most frequently used form reflects the content expressed by the interviewees (Kvale & Brinkmann, 2009, pp. 182-183). Fuss and Karbach (2014) present the different forms of transcription and recommend aligning it to the research question and the focus of analysis: if the focus is on content analysis, transcription should be reduced to recording the content (p. 57). Consequently, this research conducted transcriptions with focus on content.

Literature nominates four principles to ensure that findings from qualitative research will be accepted by the academic community: the principle of openness, the principle of theory-based approach, the principle of rule-based approach and the principle of understanding as a basic concept of qualitative research. The principle of openness encompasses the willingness to include information contrasting any pre-judgments of the researcher, and tackles the danger that generated information is forced into predefined categories. Mayring (2015) describes this aspect and argues that the predefinition of codes is part of the grounding of research in theory and – if documented – represents a legitimate procedure of qualitative research (pp. 59-60).

The principle of theory-based approach encompasses relating to existing theory and building new concepts upon it. It is a general principle of science, which this research reflects by transparently building on existing theory and clearly referring to it.

The principle of rule-based approach demands openly communicating the underlying theory for setting up the research process, and is put into practice through the sections on methodology and its application in the context of this research.

The principle of understanding as a basic concept encompasses curiosity and is defined as a means rather than an end (Gläser & Laudel, 2010, pp. 31-33). These principles are reflected in the questionnaire design generally encompassing open questions, thus inviting new information; the questionnaires have been designed on the basis of existing theory and the theory of the Leipzig leadership model based on generally accepted norms of research.

Qualitative interpretation of interview data represents an iterative process of triangulation of interview data, existing theory and the researcher's own understanding and interpretation (Patton, 2002, p. 477). This research analyses its interview data based on the qualitative content analysis developed by Mayring (2015). This method was chosen due to a number of factors: the view of leaders regarding their universities and their role, their self-constructed identity, leadership style and belief system, was at the focal point of interest within the predefined categories of the Leipzig leadership model. As the model was not available at the time of the development of the questionnaire, the correspondence between questionnaire and model is presented in the preceding Table 14 (see page 182), with this approach delivering the advantage of avoiding a methodical artefact by asking suggestive questions.

Thus, the task emerged of juxtaposing existing theory, represented by the Leipzig leadership model, to the outcomes of the interview and using the process for triangulation of the interview data. Qualitative content analysis defines the system of category as its key aspect and its central instrument of analysis. This procedure delivers intersubjective verifiability, adds the system of codes, as well as ensuring their justifications will be openly presented (Mayring, 2015, pp. 51-52).

Qualitative content analysis represents the advantage of being data-based and systematic, as according to Figure 26 (see page 190). This involves that the entire body of material is included in the analysis to the process rule, ensures the systematic approach in analysing the material and assigning information to the relevant categories, thus deliberately including information that contrasts existing ideas. Additionally, qualitative content analysis supports the theory-based approach by interrelating categories from the applied theoretical model (Leipzig leadership model) and the interview data. The general request of qualitative research for openness is taken into account by not predefining codes and by delivering the opportunity to change and specify categories. By following these guidelines, and documenting each step, intersubjective reproducibility can be achieved (Gläser & Laudel, 2010, pp. 205-206).

The principle of openness creates a field of tension with the aspect of predefined codes. Mayring (2015) describes this aspect and argues that the predefinition of codes can be part of the grounding of research in theory and – if documented – represents a legitimate procedure of qualitative research content (pp. 59-60). In qualitative research a code is defined as a short phrase or word capturing the essence of language based on visual data (Saldana, 2009, p. 3). Coding is defined as a constant comparative analysis of texts, as it attaches labels to groups of words, thus forming codes. The codes emerging from the data are compared with each other and related to the topic (Robson & McCartan, 2016, pp. 474-475). Different forms of coding are categorized by the degree of openness: Grounded theory coding encompasses the highest possible level of openness and derives codes and categories from data. By contrast, qualitative content analysis derives categories from other sources in order to prime the researcher's focus onto the research question, thus establishing a hierarchical coding (Flick, 2009, pp. 306-328).

Based on the research design, the categories were set by the Leipzig leadership model in the dimensions of purpose, responsibility, entrepreneurship and effectiveness. As the model was not yet known to the author at the time of creating the questionnaire, the categories were not explicitly included in the questionnaire. This created the advantage that the aspects of the Leipzig leadership model emerge in the texts – they are not a product of the questions being asked. Consequently, a hierarchical way of coding was employed, as the categories were taken from the model and applied to the internationalization of German universities. The evaluation of the semi-structured interviews was conducted according to the quantitative content analysis.

Content analysis requires a process model and the selection of source material, including the definition of units of analysis as the coding unit (smallest possible unit) and the context unit (one interview). The aim is to create a theory-based systematic approach. A coding unit has been defined as one statement (Mayring, 2015, pp. 50-65), with the list of all coding units presented in Appendix D. The content analysis was conducted by use of the software MaxQDA Analytics Pro (Kuckartz, 2016).

In the first round of coding, subcategories were assigned to the categories taken from the Leipzig leadership model, with statements paraphrased and quotations assigned to the paraphrases. All emerging codes were cross-checked with all other interviews, the code-list was consolidated several times and synonymic codes were merged (Saldana, 2009, pp. 10-11). Coding was conducted rigorously according to the research question and the context, and redundant information was reduced to the most concise version, as presented in the following Figure 26 (see page 190).

According to Mayring (1991), qualitative content analysis needs to specify the goal of enquiry, which can be the text itself, the author, the related object or the text within a specific context background – in this research, represented by the internationalization of German universities: with regard to **Purpose**, a variety of concepts emerged, ranging from the execution of principles of science to a deeply rooted, general attitude towards internationalization. **Responsibility** generally mirrors the purpose and is derived from it. **Entrepreneurial spirit** in the context of higher education is translated in different ways: the deliberate engagement in international competition, mainly embodied by rankings; the enhancement of internal competition through hiring principles and career paths, as well as deliberately taking risks at the organizational level. **Effectiveness** encompasses approaches to leadership of rectors and presidents in the academic environment in order to develop and execute their approach to internationalization. All following rounds of coding created additional codes, applied them to all other interviews, and merged codes that did not deliver additional insights.

In the process of this research, the author has held numerous dialogues on the topic and a number of interviews. Content that was not relevant to the research question was not further evaluated for this research. Interviews have been conducted with different categories of people with regard to their position in the university. Given the leadership approach of this section, it is assumed that the hierarchical position matters and does create differing outcome.

The process of coding is conducted according to the following Figure 26: the interview material is exposed to the research question and the four categories of the Leipzig leadership model. As stated above, interview data deliver 'rich, full and real accounts' (Robson & McCartan, 2016, pp. 465-466), thus including aspects not directly relevant to the research question at all, or to the research question of this particular section. In the first case, the data is not used any further and the researcher continues with the next source, in the latter case, the data are used to enrich the research. Relevant data are coded in several rounds.

The first round of coding was used to paraphrase statements from the interviews, to be construed as an example of effectiveness. All leaders described the specifics of higher education and the resulting role model of leadership: 'Our rectorate includes all relevant stakeholders in the process – consequently people start to identify with decisions made in this process' (Interviewee 6, personal communication, January, 2016); another one added, 'Of course, I start discussions on issues with the standpoint, I aim at involving all relevant stakeholders – and of course, I do have to concede in certain aspects. But finally I have to approve the result for which I am accountable' (Interviewee 5, personal communication, February, 2016). These statements are subsumed under the code 'particular leadership in higher education'.

The second round of coding creates sub-codes to the first level, specifying their content. Regarding the specifics of leadership in higher education, the emerging question is how leaders manage to exercise leadership in a culture characterized by collegiality and the freedom of the individual professor. These can describe the individual leadership style or the management of the internationalization process: leaders have referred to their authority to set guidelines, expressed by the German word *Richtlinienkompetenz* (policy guidelines), which is assigned to the Chancellor and effects the authority of the highest-ranked leader to set the frame in which decisions are made. With regard to leadership as an instance of proactivity in dealing with expected changes, the majority of leaders described themselves as 'catalysts of innovation'.

As presented in Appendix D, the number of leaders approving one statement is displayed, with the text differentiating between general agreement (all interviewees expressed the content of the respective code), majority (most leaders agree to the statement), and opinions of individuals. As a result, the views of all six leaders are presented and mapped according to the matrix of codes.

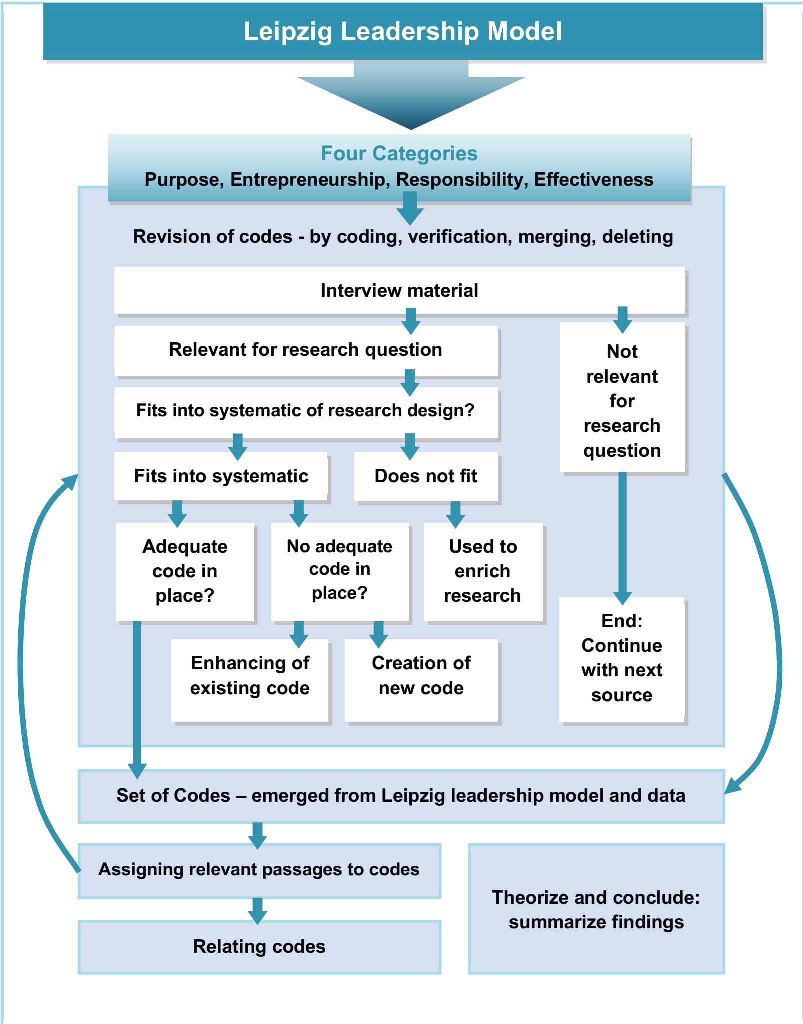

Fig. 26 Process of coding (based on Mayring, 2015, and Creswell, 2013; author's own).

5.2.1.4 Quality assurance

Flick (2014) denotes that the assurance of quality in qualitative research has not yet been solved, as the general criteria of validity and reliability are not directly applicable to this type of research. He suggests adjusting these criteria to the research design (p. 480), as is described below. Reliability in qualitative research is defined as whether a research design produces consistent results. Literature presents common pitfalls, such as equipment failure, environmental distractions, interactions and transcription errors (Robson & McCartan, 2016, p. 159). This research chose to invest in reliable equipment, take time for transcription, ask for approval, and interact with interviewees in order to generate reliable transcripts.

Silverman (2011) defines reliability as 'the degree to which the findings of a study are independent of accidental circumstances and their production', this includes replicability, and whether this study could be repeated delivering the same results, interpretations and claims (p. 360). In this context, it needs to be emphasized that the type of interview situation of this research is not exactly replicable due to several reasons (King & Horrocks, 2010, p. 160). By the time of the submission of this research, some of the interviewees will have changed their position – thus most likely changing their perspective as well. Trustworthiness in flexible designs is subject to debate, as the absence of standard procedures, as well the limitations in evaluating inter-observer differences, impose challenges on this type of research: A key aspect is that the exact same circumstances cannot be recreated (Robson & McCartan, 2016, p. 155). Thus, even if the same questionnaire were used at the same time, results may differ – as the interview data are a reflection of individual perception at the time of recording (Saunders, Lewis, & Thornhill, 2016, pp. 327-328). This research took the following actions to reduce these factors: firstly, these aspects are openly addressed and discussed in order to create awareness of potential limitations (Patton, 2015, p. 679), they are summarized and discussed below. Secondly, using Creswell's (2013) advice to check transcripts, they were sent to the interviewees for approval (p. 190) – thus it can be assumed that the approved transcripts represent their view on the issues and that they will have given the same answers to the given interview questions. Thirdly, this research refrains from analysing interviewees' non-verbal expressions (Kvale & Brinkmann, 2009, pp. 182-183), as these could not be verified by the interviewees themselves.

In this context, the concept of **inter-coder reliability** is discussed, entailing a second researcher coding the interview material and comparing the results. Literature emphasizes the relevance of accuracy of codes and process description (Mayring, 2015, pp. 127-128). Patton (2015) criticizes that this approach does not reflect the essence of good qualitative research, reducing it to outcome-oriented aspects and deviating from the substance of the process. He emphasizes the relevance of transparency with regard to process, assumptions and limitations (pp. 677-678). Gläser and Laudel (2010) agree, do not mention the instrument of inter-coder reliability, and instead focus on a clearly defined research process, which is presented in this section. This research follows this interpretation and focuses on a detailed description of the research process, describing process and codes in a way that another researcher – using the same interview data – would reach similar conclusions.

Internal validity describes the conclusiveness of cause-and-effect relationships, whereas external validity refers to the generalizability of the findings (Döring & Bortz, 2016, p. 184). Creswell (2013) defines the validity as accuracy from the standpoint of the researcher, participant and reader, and adds the terms trustworthiness, authenticity and credibility. He nominates a number of validity strategies, with the following employed in this research: triangulation of different data sources and methods, rich description of findings, and clarity on the bias of the researcher (p. 191).

Theory on qualitative interviews acknowledges that their findings are not automatically generalizable, as the circumstances of the research are generally not replicable (Saunders et al., 2016, pp. 327-328). Lincoln and Guba (1985) suggest the use of the concept of transferability instead of generalizability, requiring that research describes selection criteria for interviewees and justifies the selection, properties of interviewees are described, the context of research is described and the relationship of researcher and participants is made transparent (pp. 301-303). The selection criteria of interviewees, as well as the relationship of researcher and participants, including researcher bias, have been presented above.

Credibility in place of validity involves the endorsement of the interviewees; transferability instead of generalizability demands sufficiently rich data to enable the reader to assess whether findings can be applied to other settings; trackable variance acknowledges that the setting of qualitative research changes – and requires consciousness of the aspect that the setting is not replicable; confirmability instead of neutrality requires the inclusion of an adequate level of detail of data – allowing the reader to recapitulate the steps of the research (King & Horrocks, 2010, pp. 160-161). Overall, it can be concluded that qualitative research must not claim any property that it cannot deliver, it must explicitly state its limitations and thoroughly report all steps conducted. This research includes a plan of analysis as well as its description, it presents its coding scheme and delivers a rich description of findings, as suggested by Creswell (2013, p. 191). The interview texts were approved by the interviewees; their interpretation has not been sent for practical reasons, in order not to overstretch the leaders' limited time.

Patton (2015) proclaims that strengths and weaknesses of the particular research need to be acknowledged and discussed (p. 679). The strength can be described as capturing the subjective views of key protagonists of German higher education, based on the documented questionnaire and evaluation procedure. The weakness is inherent to this type of research: given that the interviews were conducted in 2016, they cannot be repeated (Saunders et al., 2016, pp. 327-328). As outlined above, the coding procedure was conducted by the author only. In order to be transparent in the process, and to reduce subjectivity as much as possible within the chosen research design, the codings were continuously discussed with other researchers and are displayed in Appendix D; additionally, categories were taken from the Leipzig leadership model. Nevertheless, the findings from the qualitative interviews do include a degree of subjectivity, which can be assessed as a weakness.

Several authors underscore the relevance of **triangulation** as a means of enhancing the rigour of the research and of tackling threats to validity (Patton, 2002, p. 477; Robson & McCartan, 2016, p. 158; Silverman, 2011, p. 369). Silverman (2011) defines triangulation as the combination of multiple origins of data and theory, in order to produce a more accurate and objective representation of the object of study (p. 369). Flick (2011) denotes that the instrument of triangulation has found most acceptance in literature. Triangulation is defined as the combination of different methodologies while studying the same phenomena. Four different types of triangulation are differentiated: triangulation by data, by investigator, by method and by theory. Data triangulation describes the inclusion of different sources of data by distinguishing according to time, place and people. Investigator triangulation is defined as employing different observers or interviewers. Triangulation of methods includes triangulation within one method and between methods. Triangulation by theory encompasses the inclusion of different theories (pp. 13-16). Denzin (1973) nominates interactionism, Marxist phenomenology, feminism, semiotic and cultural studies as possible theoretical perspectives (pp. 297-310). This research applies the concept of method triangulation by combining quantitative and qualitative research, as described in the respective sections of this research and the figure below.

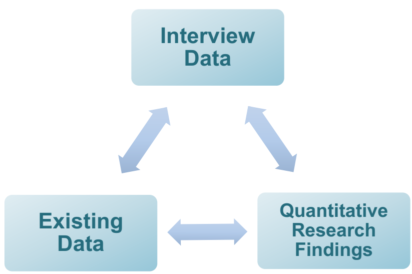

Fig. 27
Triangulation of interview data (author's own).

Overall, this research is well aware of the issues of quality assurance in qualitative research. This research design represents the theoretical framework for the analysis of the internationalization process by means of the Leipzig leadership model.

5.3 The Leipzig Leadership Model

The Leipzig leadership model has been developed in the context of globalization and digitalization, acknowledging the challenges of leadership therein. The model emphasizes the necessity of a holistic understanding of leadership, accepting the challenges ahead while seizing the opportunities provided by an entrepreneurial perspective. The model underscores the relevance of leadership and a consistent approach to management and leadership providing a 'why' to the organization (Kirchgeorg et al., 2016, pp. 8-11).

The model sets high standards for leaders, pertaining to: intercultural expertise, knowledge of digital technologies, and the ability to factor in long-term consequences of today's decisions. It claims to fulfil the following criteria: simplicity, robustness and conductivity. It is process-oriented, fully accepting of good leadership's emergence in the situation at hand. It serves as a compass in restructuring the freedom of choice, which forms the value base of the model. Additionally, it is assumed that neither people nor organizations are perfect, and leadership is a learnable skill.

These assumptions are far from obvious: The earliest concepts of leadership relate to the personality and traits of the leader, with leadership having been attributed to the individual level, assuming that leaders show some special traits inaccessible to 'normal' people and followers, which cannot be learned. The benchmark personalities in history were Julius Caesar, Alexander the Great, Abraham Lincoln; in modern times, this type of leadership has been promoted by publications, with well-known CEOs like Jack Welch, Louis V. Gerstner Jr. (Gerstner, 2002), or Steve Jobs (Isaacson, 2015; Slater, 2003, pp. 143-174) as the successors within the contemporary corporate world. The general idea is that the superior traits of the individual allow superior leadership and thus extraordinary results (Haslam, Reicher, & Platow, 2011, pp. 2-7).

Organizations are perceived as embedded in societies creating responsibility, and in markets engaging in competition. Competition plays a pivotal role for leadership: leaders are often to judge the outcome of inner-organizational competition, and to position the organization in the external competition, i.e., the markets. The model assesses that globalization and digitalization precipitate fundamental changes within society, enhance conflicts and complexity, and thus require the rethinking of leadership. Leadership theories reflect the general challenge of capturing the variety of leadership situations in the most theoretically adequate way. The field of tension between rigour – in the scientific sense of generalizability, preciseness, consistency and grounding in data – on one side, and relevance – in the sense of delivering an orientation for practical leadership – becomes particularly apparent (Kirchgeorg et al., 2016, pp. 12-13).

The authors emphasize a double embeddedness of leadership in the framework of a subordinate organization and in the framework conditions of a society; the former encompasses societal legitimacy, a 'license to operate', and derived rights and obligations towards legal and legitimate claims of third parties. The latter underscores the relevance of competition as a universal phenomenon, becoming a guiding principle for many areas of life, including systems of education. Consequently, it is the task of leaders to channel and shape forces of competition in and outside the organization (Kirchgeorg et al., 2016, pp. 16-17).

This research aims at accepting this invitation and delivering concrete, university-specific applications of the model.

Leipzig leadership model consists of four dimensions: purpose, entrepreneurial spirit, responsibility and effectiveness. It is the task of the leader to navigate the organization within these dimensions, as are described in the following sections.

5.3.1 Purpose

The Leipzig leadership model refers to the perceived situation of employees being confronted with the demand of 'more, faster and better' under limited resources. Leadership without delivery of a convincing answer to the question of the bigger picture risks losing credibility and is likely to be perceived as arbitrary. Purpose is defined as something beyond the individual advantage, it asks for meaning and inner commitment. Consequently, a well-defined purpose encompasses individual, achievement-oriented motivation, entrepreneurial success, as well as contributing to societal progress. The role model of leaders is derived accordingly and thus defined as temporary power. Contrasting many theories of leadership focusing on the 'how', the model asks for the 'why'. This perspective is based on the conviction that today's challenges can only be met through the guidelines of sense and value (Kirchgeorg et al., 2016, pp. 21-22).

The model's concept of purpose accepts the complexity of today's world, denies simple reductions of complexity, and claims that leaders need to provide 'orientation knowledge'. The authors assess a gap in literature with regard to the question of defining a purposeful contribution in the larger perspective. Leadership aligned to the purpose is rooted in the 'why' of organizational action. Organizations serve society and derive their legitimacy from contributing to the progress and stability of society. Criteria of quality emerge in the interplay of politics, economy, science, media and the general public, and define what is considered valuable and sustainable. The requirements to leadership are analysed on three levels: the individual, the organizational and the societal context (Kirchgeorg et al., 2016, pp. 22-23).

Individual level: The purpose originates in each individual leader; the authors assess that only profound convictions enable the conduct of self-leadership and the leadership of others to achieve cutting-edge results. The model assumes that leaders and employees equally strive towards making a difference and to further developing themselves. Leaders' legitimacy is not derived from roles, hierarchy or status, but from their service to the purpose. Consequently, the model asks for leaders' self-motivation and underlying motives in order to produce clarity and consistency in decisions and actions (Kirchgeorg et al., 2016, pp. 23-24).

Organizational level: Purpose can only be integrated by actions; it cannot be enforced by order and incentives. The purpose connects individual and collective goals and enables members of organizations to achieve common goals. Consequently, purpose is defined as a collective alignment and principle of coordination. A collectively shared interpretation of events is reached and creates common ground within the organization. The purpose is not to be confused with a mission or vision, these instruments are the consequence and realization of purpose (Kirchgeorg et al., 2016, pp. 24-25).

Societal level: The authors proclaim that organizations need to earn their 'license to operate' by delivering public value. The authors present the field of tension between the freedom of each individual to set goals – and the necessity for a broad consensus in society. Again, a purpose enables a balance of interest between individual and collective interests. Long-term organizational survival is assumed if the organization manages to progress while maintaining its unique identity and character. Again, the purpose facilitates the balance between past and change. Purpose in the defined sense is central to the model, as it provides a guideline to assess actions, processes and structures with regard to their value contribution (Kirchgeorg et al., 2016, pp. 25-26).

5.3.2 Entrepreneurship

The model considers curiosity, creativity and the will of humans as improving their general capacity to be facilitators of progress. The authors refer to Schumpeter (as cited in Kirchgeorg et al., 2016, pp. 27-28) and his theory of creative destruction mainly through new technologies. The interdisciplinary approach of start-up companies with access to large amounts of venture capital provides a threat to existing organizations, which are forced to challenge existing business models, strengthen existing transformational powers and dare radical change. This aspect has been encapsulated by the term 'management of permanent change' (Kirchgeorg et al., 2016, pp. 27-28).

Entrepreneurship is considered increasingly relevant to existing organizations due to shorter cycles of innovation. Consequently, creativity, self-initiative and the willingness to take risks are essential to organizational survival. The information revolution is part of the problem and solution simultaneously: digitalization enables flexible responses and reduces transaction costs, exchange and networks are facilitated, and external groups can be integrated into innovation and change processes. On the other hand, they represent a significant threat to existing large organizations: In the corporate world, results are already apparent: the stability of large organizations has decreased tremendously. In order to cope with this environment, the concept aims at enhancing organizational ability to recognize fundamental change proactively and – despite uncertainty – engage in it. Entrepreneurship at the organizational level is defined as allowing leaders in organizations to challenge existing processes and to incur risks (Kirchgeorg et al., 2016, pp. 29-30).

At the behavioural level the model defines entrepreneurially oriented innovativeness as the creativity and openness of employees to create new ideas and products, combined with the will to bring them to market and the readiness for permanent change. The model defines the 'innovators' DNA' by deliberate risk-taking, challenging existing structures, and enthusiasm for experimentation. It can thus be described as a mindset based on intrinsic motivation. Consequently, leaders are to create a culture of agility, creativity and innovation to facilitate the emergence of patterns of behaviour based on flat hierarchical structures. The following ingredients of entrepreneurship are defined: self-initiative, proactivity, tolerance for ambiguity and the willingness to take risks (Kirchgeorg et al., 2016, pp. 31-32). The model suggests that these requirements should be mirrored at the organizational level by strategies for technology, organizational ambidexterity, network culture, flexible organizational structures, and respective, supportive framework conditions (Kirchgeorg et al., 2016, pp. 34-35).

The model proclaims that entrepreneurially oriented, innovative leadership enhances the innovative capacity not only of the organization but of the region and country as well, thus creating public value. In this context, the model points to the relevance of regulation, which can be a driver or impediment to innovation (Kirchgeorg et al., 2016, p. 35).

5.3.3 Responsibility

The model derives the meaning and relevance of responsibility from the original meaning, 'to answer to'. In essence, organizations owe response to those who are affected by its actions, distinguished by moral and legal responsibilities (Kirchgeorg et al., 2016, p. 36). The model differentiates between legitimate and illegitimate expectations: not all expectations of stakeholders – such as employees, customers (students), owners or the general public – may be realistic, or they may only be met at the expense of other stakeholders. Additionally, there may be legitimate interests, such as the long-term existence and success of the organization, which may not be advocated at the time but do represent legitimate expectations. As generally not all expectations can be met, it is essential to establish a decision-making framework, which is also accepted by stakeholders who are not granted the desired results (Kirchgeorg et al., 2016, pp. 37-38).

Leaders – by virtue of position and the related rights to dispose resources and power – dispose greater degrees of freedom and consequently their responsibility to deal with expectations. The model acknowledges that expectations are generally heterogeneous, incompatible to each other and not always adequate. It is thus a key task of leaders to balance out these expectations. Leaders' responsibilities are defined on three levels: responsibility for the level of action, the level of regulation and the level of communication. Responsibility of actions encompasses the alignment of the leader's actions along guiding principles; responsibility for the structures requires that leaders create structures and regulations that facilitate actions in line with the purpose, and that establish organizational trust. Responsibility for communication integrates the communication of the common purpose, the process to derive and renew it, and to constantly provide common ground and deliver focal points for the organization. In this context, the authors emphasize the relevance of consistency of words and actions, and point to the fact that leaders acting contrary to purpose delegitimize both purpose and values (Kirchgeorg et al., 2016, pp. 40-43).

5.3.4 Effectiveness

The Leipzig leadership model acknowledges that any organization faces scarce resources and thus has to make decisions on effectiveness and efficiency, differentiated by doing the right things versus doing things right. The model declares effectiveness to be one of the core aspects, due to the above-described rapid changes in the environment. Effectiveness is to be aligned according to the dimensions of responsibility and entrepreneurship, and coordinates organizational efforts. As effectiveness measures the extent of the achievement of goals, its first function is to translate organizational purpose into operationalized goals. Relating to responsibility, effectiveness encompasses the inclusion of the interests of relevant target groups in order to make decisions upon the right way to go. Additionally, an assessment of strengths, weaknesses, opportunities and threats is demanded. Effectiveness transforms the purpose into concrete and precise goals, including the timing dimension (Kirchgeorg et al., 2016, pp. 43-44).

The authors distinguish between leadership and management, the former providing orientation and initiating movement, the latter aligning resources and ensuring implementation. The model points to the particular relevance of the effectiveness dimension in leadership: changing environments demand for flexibility and agility – which are to be developed and facilitated by good leadership. The model concludes its presentation of the dimension by delivering four levels of leadership of activity: self-leadership in order to provide a role model; effectivity at the interpersonal level, focusing on dialogue and communication with employees and stakeholders; effectivity at the institutional level, demanding that leaders align all processes to purpose and goals, and effectivity in the societal environment. Thus the model includes effective interaction with external stakeholders in the societal environment, describing the aspect that organizations act within a larger environment and are confronted with the idea of corporate citizenship (Kirchgeorg et al., 2016, pp. 48-49).

5.4 Reflection of the Leipzig Leadership Model's Aspects in Literature and in Reference to this Research

5.4.1 Purpose and related concepts in literature

The relevance of purpose is acknowledged by many authors, who have reflected on the thought that a deeply rooted purpose has a strong positive impact on individuals and organizations. Nietzsche (1881/2011) got to the heart of the point with his famous aphorism: 'He who has a why to live for can bear almost any how' (Aph. 297); Frankl (2013) proclaimed that the search for meaning is inherent to humans and a lifelong task.

Sinek (2011) presents a similar model in his publication, *Start with Why*: In his golden-circle concept the 'why' represents the centre, which is equivalent to the notion of purpose in the Leipzig model (pp. 37-51). Pascarella and Frohman (1989) proclaim the 'purpose-driven organization' sets a frame for decisions, unleashing the creativity and vitality of the organization (pp. 28-32).

Do universities need a purpose? Lockwood and Davies (1985) denote that the purpose of universities all over the world is generally: 'search for truth, to discover, store and disseminate knowledge and to be critics of society' (p. 61). Rowley, Lujan, and Dolence (1997) point to the fact that public universities are bound into a strait-jacket setup by public regulation and collegial forms of management, requiring approval of many people for slight changes of direction (p. 43).

Although framework conditions around freedom for universities regarding regulation and collegiality have been improved, as outlined in Chapter 2, the above-described situation may create the case for a purpose: Morrill (2010) defines purpose as the reason for existence, and asserts that purpose delivers the distinction of the values, aims and capacities of the university. He derives its relevance from the human need for making sense of what they do (p. 137). Thus, a purpose delivers multiple benefits: leaders can earn trust by aligning efforts to the purpose, the organization receives orientation knowledge in turbulent times, and changes are more likely to be accepted by employees (Pinkwart & Jumpertz, 2017, January 20).

Drucker (2011) proclaims that any organization must serve an outside need to earn its legitimacy. He explicitly includes universities by denying the concept of the university being an end in itself. He draws the connection to the knowledge economy defined by the centrality of knowledge. Consequently, universities have the task of educating society and delivering knowledge, creating the case for a purpose outside the academic sphere (p. 193).

With regard to the purpose of internationalization, two main streams of convictions could be identified: the first considering higher education to be inherently international (Van der Wende, Beerkens, & Teichler, 1999, p. 65). On the other hand, a purpose can be derived from motivations linked to a greater perspective, as presented by Pinkwart and Czinkota (2012), such as the contribution to the solution of global problems, or the recruitment of skilled students and researchers to strengthen the knowledge-base of the university and the country (pp. 256-257).

Thus, the role and relevance of purpose in the perspective of the individual leader is to be evaluated and it is to be assessed, whether it is within or beyond science.

5.4.2 Entrepreneurial spirit and related concepts in literature

'Entrepreneurial spirit is characterized by innovation and risk-taking, and is an essential part … to succeed in an ever changing and increasingly competitive global marketplace' (Entrepreneurship, 2016). Drucker (2011) predicted, in 1969, an 'Age of Discontinuity' driven by new technologies, new industries and new economic powers. He adds that a time of change requires entrepreneurship and innovation, and propounds the 'innovative organization' will turn ideas into results. Unlike common perception, he denies that this process is chaotic but rather is disciplined and well-structured. Leaders are thus in the position to encourage risk-taking and new, unforeseeable ventures (pp. 3-53).

The necessity of deviation from the past has been proclaimed by Schumpeter (1912/1983) by the term 'creative destruction'. This is a particular challenge to large organizations; Drucker (2011) emphasizes that large organizations are generally effective by means of scale rather than agility. However, he asserts that any organization must be capable of change, must be able to get rid of yesterday's task for the sake of today's success. Drucker bemoans that government and universities generally have a hard time getting rid of old topics – for the reason of guaranteed funding (p. 179).

Covin and Miles (1999) present four forms of corporate entrepreneurship: sustained regeneration (new products or markets), organizational rejuvenation (enhance the organization's efficiency), strategic renewal (update strategy), domain redefinition (create new combinations of product and market) (p. 48).

Entrepreneurial spirit is considered the origin of innovativeness, with Lumpkin and Dess (1996) proclaiming that innovativeness is a by-product of an entrepreneurial spirit of the organization, innovativeness measures the firm's tendency to engage in new ideas that may result in a change of its products, and it can thus be expressed by the willingness to deviate from existing technologies. Although the authors do not name the aspect of self-initiative, it can be argued that it is included in their definition of proactivity (pp. 142-151). Leaders can foster organizational self-initiative by showing confidence in their employees, encouraging participation, and facilitating the implementation of new ideas.

Hitt, Ireland, Camp, and Sexton (2002) connect entrepreneurship and strategic management. The authors define entrepreneurship and entrepreneurial mindset largely as thinking in terms of opportunities and strategic management as ways to create sustainable competitive advantage, thus the combination is defined as the creation of competitive advantages by seizing the opportunities. Innovation is defined as the essence of entrepreneurship, the latter being found in small and large institutions. The authors follow the definition of corporate entrepreneurship and point to the difficulties of large organizations in seizing the benefits of their existing knowledge. The authors define international entrepreneurship as the process of entrepreneurially capturing international markets (pp. 1-7).

Literature has created the concept of the entrepreneurial university as presented in the previous chapter, defined by its freedom from regulation in order to pursue innovations (Pinkwart, 2007, p. 260), by serving society through its scientific character (Müller-Böling, 2001, pp. 21-22), and by the implementation of institutionalized competition (Herrmann, 2005).

Given the academic freedom, and the option of academics to cooperate internationally, universities do offer framework conditions for an entrepreneurial approach towards internationalization to their members (Pinkwart & Czinkota, 2012, p. 257). It is to be examined whether university leaders engage in strategic entrepreneurship with regard to internationalization in order to create sustainable competitive advantages in international markets, and how competition is perceived and whether it is used as an instrument to create superior results.

5.4.3 Responsibility and related concepts in literature

Meynhardt (2016) provides a definition for public value based on human needs. Public value encompasses anything that individuals perceive as valuable, including interaction, increased perceived self-worth, avoidance of pain, or the creation of positive relationships (pp. 27-29). Consequently, performance has to be defined for any institution, and leaders must limit themselves to the tasks supporting performance. Meynhardt, Gomez, and Schweizer (2014, February 3) recommend an active engagement in societal discussion on the values delivered by organizations. In a recent publication, Meynhardt et al. (2017) assess the delivery of public value of public institutions by means of a public-value scorecard derived from the balanced scorecard; universities are not included (pp. 143-150). The results are published online; institutions are evaluated with regard to their contribution to public value according to the criteria: quality of delivery in core business, contribution to social cohesion, contribution to quality-of-life and decency of organization (Gomez, Meynhardt, & Strathoff, 2017); universities are not included.

Harribey (2011) assesses corporate responsibility to be a strategic value and considers corporate commitment to responsibility a strategic move. He considers the global citizenship of multinational corporations a fact – which is not accompanied by a global regulation. He concludes that globalization presupposes global responsibility and adds four reasons to enforce it:

1. Urgency of environmental issues
2. Global economic and social challenges force companies, states and civil societies to work together
3. Supranational legislation limits corporate freedom
4. Increasing pressure from civil society (p. 26-27)

Harribey (2011) concludes that corporate responsibility is in the self-interest of organizations as a strategy of differentiation in the marketplace, and is a proactive approach for tackling future problems through actions today (pp. 23-36). He thus creates a link to the component of entrepreneurship, which encompasses proactivity (see 5.3.2. 'Entrepreneurship' in '*The Leipzig Leadership Model*' on page 198).

Suchanek (2015) connects responsibility to three key virtues: prudence, justice and benevolence. At the organizational level, he interprets prudence as the strategic enhancements of organizational competitiveness – adding an ethical justification, as the survival of the organization is in the interest of numerous stakeholders. Justice is interpreted as meeting legitimate expectations; organizational benevolence is considered desirable but will always be subordinate to organizational performance (pp. 259-260).

Evaluating the responsibility of universities towards society, Neave (2000) nominates three historical prime responsibilities of universities: transmission of knowledge to the younger generation, the advancement of fundamental knowledge, and the socialization of future elites. Reflecting on today's environment, he asks the questions as to whether the university should deliver stability or change, and what purpose should underlie the knowledge transmitted by the university (pp. 1-4). With regard to international students, it is to be evaluated whether universities presently accept responsibility for integrating their graduates into the job market (Pinkwart, 2014b, pp. 36-37).

5.4.4 Effectiveness and related concepts in literature

Effectiveness has been explored by key theorists of business strategy: Porter (2004) emphasizes that the recommendations derived from his competitive analysis deliver the most effective path to the defined ends, he thus considers effectiveness to be on the level of strategy (pp. ix–xvi). Peters and Waterman (1982) regard effectiveness as a consequence of structure: if the organization manages to encourage proactivity and entrepreneurship, good results will follow. They include the notion of value in the generalized idea of entrepreneurship: a common mindset that gears towards excellence, delivering high quality and recognition of economic growth and profits (pp. 119-326).

Drucker (1963) underscores that solid performance in core business is a pledge to other activities, such as corporate social responsibility. He defines effectiveness as the 'best possible results from resources currently employed or available' (p. 59). He requires managers to focus efforts on all levels, at the organizational and the personal level, and to decide upon priority according to the expected contribution.

He expects leaders to proactively invest in ideas for the future and to consequently abandon ideas that do not deliver the expected results. Overall, he expects leaders to produce 'decisions and actions rather than knowledge and insight' (pp. 53-58).

Mintzberg (1991) places efficiency in the larger context of the building blocks of strategy:

1. **Direction,** translated into strategy or strategic vision
2. **Efficiency,** defined as scaling, standardizing and formalizing
3. **Proficiency,** defined by the underlying knowledge and skill
4. **Concentration,** defined by the focus of units to serve dedicated markets
5. **Innovation,** defined as the vigour in the organization to discover new things (p. 55-56)

All these qualities are in effect in every organization – but to different extents; between them, competition and cooperation are possible modes of coexistence, as set by leadership. The balance of these elements determines the outlook of the organization, for example an industrial plant being strongly driven by efficiency (encompassing strong and strict hierarchies to enforce processes), or organizations with a focus on skill (such as universities). Mintzberg (1991) denotes that this orientation provides strengths to organizations as they mirror the necessities of their markets – but it provides a threat at the same time: all other aspects need to be taken into account, and any organization that does not pay adequate attention to efficiency will eventually drive costs to a level sponsors are not willing to bear. He considers universities to be professional bureaucracy, with the tendency to over-emphasize the aspect of skill at the expense of the juxtaposed quality, efficiency. The merits of this model are in the observation of organizations developing according to the primary purpose. It becomes particularly valuable in times of change (such as change of legislation), when these forces need to be realigned (pp. 55-66).

With regard to the internationalization of German universities, the following aspects are evaluated by means of interviews conducted:

- What is the position of leaders on the aspect of effectivity?
- Is there an alignment along the criteria of effectiveness – and if so, how do they exercise it in an academic environment?
- How do leaders of German universities exercise leadership within the academic environment in the field of internationalization in regard to its characteristic strong reliance on personal relationships?

5.5 Results

5.5.1 Interview data within the dimensions of the Leipzig leadership model

Leipzig leadership model consists of four dimensions: purpose, entrepreneurial spirit, responsibility and effectiveness. It is the task of the leader to navigate the organization within these dimensions, which are described as follows:

1. Purpose

The purpose signifies the driving force of an organization, provides orientation knowledge, and can serve as an alignment of organizational efforts, as well as a means to balancing the interests of relevant stakeholders (Kirchgeorg et al., 2016, pp. 22-23). As discussed above, with regard to the purpose of universities, two general strands in literature can be identified, one defining the purpose of universities within science (Lockwood & Davies, 1985, p. 61), and Drucker's (2011) proclamation of defining purpose beyond science (p. 193). Pinkwart's (2007) assertion of freedom for universities (pp. 259-260), combined with his emphasis of the fundamental relevance of purpose (HHL Graduate School of Management, 2017) can be interpreted as additional support for Drucker's proclamation of university purpose being beyond science.

With regard to the purpose of internationalization, two fundamentally different positions have been taken: one reflects the concept of science being international by nature and deriving purpose and meaning from the properties of science, including excellence, innovation and the attraction of the world's best scholars. 'I consider internationalization of science as something natural – progress is taking place in all parts of the world; knowledge is available worldwide' (Interviewee 2, personal communication, February, 2016). In the sample of this research's interviews, this idea is always connected to a science-specific understanding of competition: 'The only objective of internationalization is to attract the best brains to our university' (Interviewee 6, personal communication, January, 2016).

The other stream of ideas is rooted in purposes outside of science and academia, ranging from the objective of contributing to the solution of domestic problems such as the demographic challenge, or global problems such as international conflicts or global warming. 'We serve the local economy by delivering well-educated future employees … we contribute to the solution of global problems, such as global warming' (Interviewee 1, personal communication, March, 2016).

These concepts are not mutually exclusive; combinations are represented in the sense of employing internationality to contribute to missions beyond science: 'Our

University wants to be part of the global community of knowledge; many relevant topics can only be covered from an international perspective' (Interviewee 3, personal communication, May, 2016).

The demographic shift in Germany adds another dimension to the aspect: unless institutions employ successful coping strategies, their relevance or even existence is questioned. This aspect is clearly expressed by one interviewee: 'Internationalization is a matter of survival – we are one of the few universities not having experienced a demographically induced downturn in student numbers' (Interviewee 4, personal communication, April, 2016).

The purpose, defined by senior leaders, has a high degree of predictive power towards other aspects of the model: the emphasis of competition and documented leadership in the purpose predefines the attitude towards international competition. In this context, two positions could be found: the first refers to the general competition inherent to science and leading to a strict achievement-oriented hiring policy. The other position contains a clear commitment towards international competition: 'We want to be a globally leading university' (Interviewee 1, personal communication, March, 2016).

Another aspect, strongly determined by the defined purpose, is represented by the attitude towards technology, the link to which is described in the respective paragraph in the following point. The aspects of purpose and responsibility are sometimes hard to differentiate, as the responsibility is often part of the purpose, as is also described in the following respective paragraph.

2. Entrepreneurial spirit

Entrepreneurship in the context of the Leipzig leadership model encompasses a general affirmation and consensus towards innovation, proactivity and deliberate decisions to take individual and organizational risks (Kirchgeorg et al., 2016, pp. 27-31). Entrepreneurship was largely uncommon within German universities until the reforms of the early 2000s, as they had been largely exempted from competition (Erhardt & Von Kotzebue, 2016, p. 333). The changed regulatory environment provided the framework for entrepreneurship within the academic context (Pinkwart, 2007, pp. 257-258), was seized by the Technical University of Munich (2017), which has been awarded the Excellence Initiative for its concept and realization as an entrepreneurial University.

Findings from the interviews: There is a general consensus that the hiring policy of newly appointed professors is strictly achievement-oriented within academic criteria. 'It is clear that we want to attract the best students, teachers and scientists' (Interviewee 6, personal communication, January, 2016).

The aspect of job status of employees is part of the approach of two universities: in the German system, a large proportion of junior researchers are employed in temporary positions. They face the risk of their position not being prolonged – regardless of their performance. On the other hand, appointed professors generally enjoy civil-servant status and consequently complete job security – regardless of performance. Two universities have deliberately changed this approach by:

Reducing the job security for professors: Instead of providing the status of civil servant, with its consequent full job security – and thus no hard incentives for academic performance – the university has introduced a performance-rewarding career system for professors, with a particular focus on international junior researchers. 'The new system breaks with old traditions in academia and is especially attractive for international talents' (Interviewee 1, personal communication, March, 2016).

Improving perspectives for junior researchers: One university introduces an element of entrepreneurship, in the sense of deliberate risk-taking: 'We transform 30% of fixed-term into permanent contracts – the organization can bear the risk' (Interviewee 6, personal communication, January, 2016).

Perspectives on international and global competition do slightly differ. International competition is largely defined by international rankings, which are perceived in two main ways: there is a general consensus that rankings have a significant impact on the internationalization and that they do deliver feedback on organizational performance. However, all participants point to the inherent downsides of rankings, such as the favouritism towards established, large institutions: 'Rankings systematically exclude small and young universities' (Interviewee 4, personal communication, April, 2016), and the fact that many institutions align their strategy towards the criteria of rankings without delivering additional quality: 'Some universities simply adjust to rankings in order to be in a good position' (Interviewee 3, personal communication, May, 2016). Thus it can be noted that there is a general consensus of view on rankings, with differences originating in the distinct strategic positioning of universities.

The universities draw varied conclusions from this assessment, ranging from a clear commitment to reaching high placements in international rankings on one extreme, to the decision to refrain from participation on the other. 'Our programmes are highly specific and do not fit into the systematic of international rankings – thus we do not participate' (Interviewee 3, personal communication, May, 2016). A very self-confident statement reveals a strategic approach towards rankings: 'We manipulate rankings – we extract their systematic, present our results in it and perform much better in these rankings' (Interviewee 6, personal communication, January, 2016). Overall, it can be remarked that universities generally optimize their position with regard to rankings – deriving from the opportunities largely dictated by age, portfolio of subjects and historical record.

Several interviewees emphasize the high degree of relevance of culture as a governing instance of actions. In most cases, the general attitude towards internationalization is very positive: 'Internationalization is our foundation mission – there is a general consensus in the University to pursue it' (Interviewee 4, personal communication, April, 2016). Uncertainty among scientists is described by one interviewee as occurring whenever university leadership transforms existing partnerships into strategically relevant action items. One interviewee describes the concerns of part of faculty: 'If University leadership declares internationalization a strategic priority, am I allowed to continue my partnerships, and what does this mean for my work?' (Interviewee 5, personal communication, February, 2016).

Entrepreneurship encompasses the usage of arising opportunities. Several interviewees reported that their university refers to existing historical links and connections: 'Our city hosts the biggest community of one nationality – and we leverage on this existing link' (Interviewee 5, personal communication, February, 2016). This includes programmatic initiatives: 'We deliver highly specialized courses covering the business aspects of the country directly neighbouring us' (Interviewee 4, personal communication, April, 2016); 'We host international conferences which relate to historical events which have occurred in our city' (Interviewee 6, personal communication, January, 2016).

Internationalization can be employed to generate student intake – within the German system in many states there is a prerequisite for public funding based on student numbers. One interviewee reports that their university deliberately employs internationalization for this means: 'Our student numbers are stable despite the demographic situation of the country – largely due to the strong development of our international students' (Interviewee 4, personal communication, April, 2016).

Overall, leaders' attitudes towards international entrepreneurship reflect diversity in the German system of higher education.

Technology: Technology is expected to be a major driver of fundamental change in higher education (Pinkwart & Czinkota, 2012, p. 255). In the context of internationalization, digital media can deliver multiple benefits: competence-based selection processes, supporting international students through online courses, and using online courses for marketing purposes (HFD, 2016b, pp. 14-25).

The majority of interviewees (four out of six) advocate a reactive strategy with regard to new technologies. This view is based on the observation that online programmes – so far – have not delivered significant results, in the perception of the interviewees: 'So far, massive open online courses did not succeed in the marketplace' (Interviewee 2, personal communication, February, 2016); another does not consider online courses to be ready for use: 'You need to let others make some mistakes – we use technologies wherever our faculty consider them to be helpful' (Interviewee

6, personal communication, January, 2016). Technology is defined as a means to support teaching and learning in the given context of campus-based universities. All six universities offer central support to faculty in the use of technology.

The strategy of observing the activities of others, and selectively imitating and combining existing strategies and approaches, shows a number of benefits, such as reduced requirements for investment and less risk, and has been labelled 'innovative imitation' by Levitt (1966, pp. 65-69).

3. Responsibility

The Leipzig leadership model defines responsibility as the delivery of answers to legitimate requirements from stakeholders, and presents the three levels of actions, structure and communication in which responsible leadership is to be exercised (Kirchgeorg et al., 2016, pp. 36-42). Bryson (2011) emphasizes the pertinence of identifying relevant stakeholders, in particular for government and non-profit organizations (pp. 134-135). Fraune (2012) categorizes in- and external stakeholders, and nominates faculty, junior researchers, university leadership, students, governments, accreditation agencies, third-party funders and companies as stakeholders of universities (pp. 8-41).

In the context of internationalization of German higher education, the dimensions of purpose and leadership are closely related, in the sense that the purpose predetermines the defined responsibility: Leaders' perspectives on responsibility can largely be derived from their view on purpose: universities focus on science as an end in itself, and internationalization, being a natural consequence of the essence of higher education, does not nominate additional aspects of responsibility.

On the other hand, all leaders having defined a purpose beyond science's present aspects of responsibility as including aspects of the civil society and its global citizens, the solution of global problems, the idea of Europe, the engagement in the discussion on technologies and political sciences, and the contribution to the local German economy.

Internationalization is largely perceived as a means to an end, with responsibility derived from this end. One interviewee clearly expressed: 'Internationalization is not an end in itself – it is used to improve research and teaching' (Interviewee 5, personal communication, February, 2016).

The idea of the university strengthening a democratic society and educating its students beyond academic content, in terms of democracy and citizenship, is nominated by two interviewees: 'We want to be a public university for the civil society in the 21st century' (Interviewee 3, personal communication, May, 2016), emphasizing the role of a publicly funded university. Another interviewee underscores the value of the European Union and proclaims that their university wants to be 'the European University and a place of plurality and democracy promoting the idea of the European Union' (Interviewee 4, personal communication, April, 2016).

Strengthening the German economy is the goal nominated by several leaders, with slightly differing accentuations: one interviewee defines the local economy as a target group: 'We serve society by delivering well-educated employees to small and medium companies' (Interviewee 1, personal communication, March, 2016); another focuses on start-ups: 'We encourage our students to start their own companies – for their benefit and to strengthen this region' (Interviewee 4, personal communication, April, 2016).

The idea of contributing to the solution of global problems is expressed by Interviewee 5 (personal communication, February, 2016): 'Take the example of world nutrition – this problem cannot be solved by using domestically based approaches'. Additionally, one leader proclaims that the solution of global problems can be facilitated by an enhanced global understanding. The idea that universities can build bridges towards countries that are difficult to access in general due to the geopolitical environment, like Saudi Arabia or Russia, is expressed by this leader: 'The essence of internationalization is the exchange of perspectives and opinions, and encounter of different cultures – this is the contribution of academia to the understanding of people. It includes engagement in countries in which we do not approve their entire political system' (Interviewee 1, personal communication, March, 2016).

The contribution to the solution of the demographic challenge in Germany and the integration of people from different origins into the German society is commented on by this interviewee: 'Since 1945 it has been a central task of the German society to integrate people from different origins, the European unification process creates an additional frame for internationalization. Consequently, the self-perception of subjects, as well as the political framework, strongly demand internationalization' (Interviewee 3, personal communication, May, 2016).

4. Effectiveness

Effectiveness, according to the Leipzig leadership model, is to be aligned according to the dimensions of responsibility and entrepreneurship. It coordinates organizational efforts, translates organizational purpose into operationalized goals, and measures the extent of achievement, thus generally requiring concrete-defined and measurable goals (Kirchgeorg et al., 2016, pp. 43-44). The introduction of the principles of new public management to German universities (Bogumil, 2013; Hood, 1995, pp. 93-98; Olssen & Peters, 2005, p. 320), as described in section 2.4.1.2., makes the case for the dimension of effectiveness in the context of German universities and their internationalization.

The selected universities share one characteristic: their rectors all engage strongly in the topic of internationalization. Two of the six do have a vice president for internationalization; all others locate the formal authority entirely with the rector or president.

One interviewee made the provocative remark that 'the German university is generally unable to strategize' (Interviewee 1, personal communication, March, 2016), and concedes that parts of the university may be led by means of strategy and that internationalization could be one of them.

All interviewees agreed that internationalization is not to be planned on the basis of quantitative benchmarks. One interviewee clearly doubted the controllability of the process: 'Internationalization cannot be controlled directly – it works through the perception, the image' (Interviewee 1, personal communication, March, 2016). All interviewees report qualitative criteria to measure internationalization: 'It is essential that the university breathes internationally' (Interviewee 6, personal communication, January, 2016).

There is general consensus among all interviewees on the specifics of higher education; one interviewee highlighted the general suspicion of academia towards central leadership: 'Anyone joining the rectorate is under general suspicion of trying to regulate everything' (Interviewee 6, personal communication, January, 2016); another agreed, making the point that 'you can never lead by order – it always has to be a participative process' (Interviewee 4, personal communication, April, 2016). Nevertheless, all leaders agreed that – as they are finally responsible – they need to shape decision-making processes. One interviewee described this aspect as follows: 'You always have to try to win people for new ideas, but at some point you need to make a decision – and that's what I do' (Interviewee 4, personal communication, April, 2016).

Each leader has developed their own style of dealing with the participative culture of academia and the necessity of shaping decision-making processes. The following approaches were mentioned by the interviewees:

- management by delegation (Interviewee 2, personal communication, February, 2016)
- situational management (Interviewee 1, personal communication, March, 2016)
- management by discussion and perseverance (Interviewee 5, personal communication, February, 2016; Interviewee 6, personal communication, January, 2016)
- **Management by delegation** is characterized by a representative of the rector in the process of internationalization; the leader describes it as follows: 'Internationalization is a matter of senior management, however including strong properties of delegation. The rector's representative has a strong position, faculty delivers impulses, decisions are generally discussed collegially, but the final decision is

taken by the rector' (Interviewee 2, personal communication, February, 2016). Thus, the inclusion of faculty – and hence the cooperative, bottom-up nature of higher education is ensured – and management responsibility is clearly addressed.
- **Situational management** describes the approach of adapting the leadership style to the situation at hand. One leader describes it as follows: 'If necessary, I am ready to make decisions and act highly directive – if new initiatives need to be launched, I find a participative attitude more helpful' (Interviewee 1, personal communication, March, 2016).
- **Management by objective discussion and perseverance** emphasizes the specifics of the academic environment: 'Luckily, universities consist of intelligent and rational people – thus, solid arguments combined with endurance are cardinal virtues of the process' (Interviewee 5, personal communication, February, 2016). Another interviewee agrees and adds additional aspects: 'We have developed the leadership style of directed evolution, including discussions and moderated decision-making processes based on the principles of transparency, fairness and reliability' (Interviewee 6, personal communication, January, 2016).

Overall, it needs to be added that these leadership styles are not mutually exclusive, but mutually combinable.

5.5.2 General overview on findings: Typology of approaches

The findings can be interpreted along Pinkwart's (HHL Graduate School of Management, 2017) proclamation that the purpose represents the centre of the leadership approach. The interviews allow for the creation of a typology of universities according to their approach towards internationalization, differentiated mainly by the purpose and the consequent level of proactive effort with regard to expected change in higher education:

1. Aspiration to be a globally leading institute

The first approach towards internationalization is characterized by the expectation of belonging to the top institutions in Europe – and of serving society by providing high-skilled employees, especially to small and medium-size enterprises of the region. As suggested by the Leipzig leadership model, the purpose integrates several dimensions, such as organizational interest, to 'be a globally leading university' (Interviewee 1 personal communication, March, 2016), and responsibility: 'We serve society by attracting strong international students and researchers' (Interviewee 1, personal communication, March, 2016). Internationalization is thus a medium for attracting high-end researchers in order to serve the purpose.

This approach employs the idea of competition as a central element on several levels: International rankings are – although viewed critically – clearly used to benchmark the institution, to trigger quality and to enhance international visibility. Internally, job security for junior researchers is reduced, being linked to performance in order to encourage academic performance. 'We expect of professors to act internationally; careers in our University clearly happen [as] performance-based' (Interviewee 1, personal communication, March, 2016).

Reflecting this organizational self-concept, the institution employs a proactive strategy by engaging in frontier technologies in order to present its quality and enhance international visibility. Consequently, the use of learning technologies, including massive open online courses (MOOCs), is conducted under the supervision of leadership: 'Academic teaching is a means to enhance international visibility and has to be done on the cutting-edge level – if not, significant damage can be cost' (Interviewee 1, personal communication, March, 2016).

2. Optimization within the status quo

The second approach defines the purpose of science unto itself and internationalization as within the inherent quality of science. 'I perceive internationalization in science as something natural; science is inherently international; scientific progress happens everywhere in the world and scholars are in continuous exchange – we do not need an imperative to internationalize' (Interviewee 2, personal communication, February, 2016).

Competition within the target system of science is also applied in internationalization – consequently, internationalization is interpreted as another means to attracting the best students and scholars. 'I see one single advantage of internationalization: to attract the best people' (Interviewee 6, personal communication, January, 2016). All universities that can be subsumed in this category share a critical, pragmatic and self-confident view on rankings, such as the proclamation for employing rankings for the good of the university. However, the outcome in rankings is not a criterion for decisions made by the leadership of these universities – strategy is content-driven, which includes the policy of cooperating with direct competitors in rankings if the cooperation contributes to the development of the university.

The aspect of technology is included in order to incrementally improve the campus-based university; and to support students in succeeding in their studies, as described above, this approach has been labelled by literature as 'innovative imitation': experiences of other universities are observed and evaluated as to whether their concepts are applicable within their own context. Generally, within this strategy, the use of technology is largely decided by faculty and supported by central units; the approach to technology can thus be described as faculty-based and largely reactive.

3. Niche strategies

The third approach is represented by niche strategies: within this sample, all universities of this category were characterized by a clearly defined purpose, one as including internationalization as a foundation mission, another as serving democracy and the open society.

These two universities were located in smaller cities. Internationalization is interpreted differently according to their respective purposes: internationalization being a foundation mission creates the consequence of this aspect being represented in nearly all decisions and actions of the university. The one university had derived a very particular approach that excluded itself from a number of international comparisons due to incomparability. The consequence of less international visibility was deliberately accepted. Both universities emphasized that their clear-cut approach attracts people of compatible values and approaches to science: 'When we asked our students why they study in our University, very often they say because we are so international' (Interviewee 4, personal communication, April, 2016), and 'it is clearly a strength of our University to pursue a content-driven concept – and we thus attract the right people and select accordingly, irrespective of nationality' (Interviewee 3, personal communication, May, 2016).

The technology strategy depends on the chosen focus: one university, characterized by its closeness to a geographic border, defines a strong focus on presence-learning, and thus defines learning technologies as facilitators and quality enhancers of a campus-based model of university. Within this approach, technology is part of the internationalization strategy, its consequences are taken into account, but the approach is clearly bottom-up: 'The competence to evaluate technology is located within our faculty – and University leadership evaluates their experience' (Interviewee 4, personal communication, April, 2016).

The other university, having the purpose of serving democracy and plurality, refers to multiple changes caused by technology: the availability of information in real-time, worldwide at low cost, as a changing force of competition and generating the emergence of new formats. 'The digital world is not a forward projection of the old analogue world with digital content – it creates new topics and new formats (Interviewee 3, personal communication, May, 2016). As one consequence, this university acted as a first mover in creating the first massive open online course in a specific field related to its purpose – thus integrating internationalization by means of modern technologies, contributing to its purpose, proactively engaging in change and delivering a guideline for the entire organization.

5.6 Summary and Conclusion

Given the small sample size and the general limitations of qualitative interview data, the results have to be interpreted with care. However, given the expertise and the status of the interviewees, both within and beyond their organizations, the data allow the following conclusions:

The key factor of impact can be identified in the interplay of **purpose** of internationalization and defined **responsibility**: a purpose beyond science generally corresponds to responsibility, which the universities derive their strategy and further actions upon. Purpose originating exclusively within the properties of science implies a strategy focused on the interests and needs of the institution itself, largely defined by a strengthening of the quality of students and researchers.

With regard to strategy and **effectiveness**, there is a general consensus that university leadership is enormously complex, that it needs to integrate areas of – at times – incompatible goals, and takes place within the particular culture of academia. Every leader has developed their own leadership style for navigating in this environment; these leadership styles can be briefly described as a role model of catalyst, mediator or moderator. There is a general consensus that the senior leader of the university makes the final decision with regard to strategically relevant, international cooperations and thus significantly shapes the internationalization process of the institution.

The **technology** strategy is largely determined by the interplay of purpose and expectations towards the organization itself (**entrepreneurship**): the combination of a purpose beyond science with the expectation of belonging to the leading institutions leads to a proactive strategy in new technologies. By contrast, the combination of a purpose within science with the defined status of a campus-based university predetermines a reactive approach to technology and incremental improvements for the *status quo*.

The sample presents a diversity of views on **entrepreneurship**, ranging from the assessment that academia is inherently entrepreneurial, to a clear commitment towards incentive structures similar to business. At the organizational level, all universities apply the principle of entrepreneurship by seizing opportunities arising from existing cooperations, historical events, or existing links between region or city with other countries.

The sample presents a general consensus on the relevance of **markets** for international students and researchers, and on the relevance of different types of rankings, it confirms a degree of scepticism from German universities towards rankings due to methodology. As a consequence, some universities accept that –

for varying reasons, such as size or structure of offered courses – they are *de facto* excluded from the participation in international rankings.

Interview data deliver insights into the thought processes of leaders that can be combined with the findings from the quantitative part of this research. The finding that demographic criteria on leaders' CVs do not represent a statistically significant impact on the internationalization outcomes of universities can be explained by interview data: one interviewee clearly mentions that, in their education, international experience was less common, which they perceive as a shortcoming, and that they aim at offering this opportunity to today's students and researchers. Another leader gives the account of a personal interest in students with origins from different countries and of researching the impact of the origin on the discipline. Consequently, attitude towards internationalization is also strongly influenced by personal attitudes and research biography, which does not necessarily include international exposure.

The finding from the quantitative part that the existence of an internationalization strategy in 2012 did not show significant impact on internationalization outcomes can be explained by the complex interactions in the internationalization process of the universities, which is discussed further in the section on the final conclusions of this research (see section 6.2. on page 237).

The quantitative part delivers no significant correlation between the content of the mission statement and the internationalization outcome. Based on the interviews, a possible explanation is that universities that consider internationalization to be self-evident may not include this aspect in their mission statement – although an international approach is inherent to their work.

One interviewee introduces another aspect: Pinkwart's (2012b) emphasis on networks in science (p. 11), as well as the formulation that the best people should be attracted to universities to serve its goals (Pinkwart & Czinkota, 2011, June 22): 'First-class people attract first-class people – and second-class people attract second-class people' (Interviewee 6, personal communication, January, 2016). This aspect reflects the tendency in people of aspiring to work for highly reputed institutions and people, which is further discussed in the section on conclusions.

The following Table 15 presents interview data in the context of each university. In this sample, it can be observed that universities in rural areas have adapted a niche strategy, thus clearly communicating their particular approach to science. This aspect is further discussed in the section on final conclusions of this research. Additionally, it becomes apparent that all universities in this sample present a consistent approach to internationalization strongly driven by the defined purpose – further strengthened by the personal values of the leaders.

Table 15 Findings in the Context of the Interviews

	Specialised University in Big City	Specialised University in Big City	Full University in Rural Area	Full University in Rural Area	Full University in Big City	Full University in Medium City
Purpose, Vision Personal Key Value	• Be a globally leading university, contributing to global understanding and to solving demographic challenge • Connect home university with the world • Contribute to understanding of people	• Excellence and innovation through worldwide networks • Attract best scholars and students; international strategy fully integrated and contributing to goal • Enhance international visibility • Contribute to university's quality	• Public university for the civil society in the 21st century • Contribute to open (Dahrendorf) and civil society • University as part of the global community of knowledge; international approach essential to science • Being an active part of the open society	• The European University and a place of plurality and democracy: promote idea of European Union • Internationality in organizational DNA • Promote understanding among nations, peace • Promote peaceful cooperation of people in plurality and democracy	• International university in terms of attractability for international people • Employ internationalization to improve research and teaching • Solve global problems, educate global citizens, internationalization in thinking • Provide international experience for young people	• Enhance global knowledge, transcend borders • Attract first-class people • Science, encompassing the international dimension
Entrepreneurial Spirit Rankings In- and external networking	• Culture of achievement • Improve international reputation in rankings • Tenure track; selection of best • International activities expected and encouraged	• Inherently entrepreneurial • International competition embraced as sign of quality, driven by content and profile, not by rankings	• Create unique, inspiring environment, attract people wanting to work therein • Content driven – often not eligible for rankings due to different structure • Differentiated view on rankings: valuable feedback embraced	• Deliver opportunities to students and professors, thus fostering entrepreneurship • Not eligible for rankings due to limited size => strategy of uniqueness around values of internationality	• Encourage, align and bundle faculty's efforts • Participate in international rankings due to their visibility	• Integrate individual efforts • Decipher mechanisms of rankings and present university accordingly • Encourage 3rd-party funding acquisition • Transform temporary into permanent contracts
Technology	• Participate in frontier technologies • Part of leading platforms to enhance global branding • Professor-student relationship regarded as key • Situational approach to technology: supported wherever meaningful	• Internal networking for mutual support and pooling of resources • Campus-based university is the benchmark • Support according to subjects' needs; process innovations like helpdesk	• Embrace opportunity of digitalization and globalization • First university to offer MOOC • Technology perceived as enabler for transmitting content • Internet perceived as 'new world' entirely changing environment	• Round off programme portfolio to attract more international students • Selective investment in learning technologies: enhance online lectures due to commuter students	• Benchmark: campus-based university • Not actively managed • Follow-the-leader strategy, in order to support students	• Not actively promoted • Follow-the-leader strategy

	Specialised University in Big City	Specialised University in Big City	Full University in Rural Area	Full University in Rural Area	Full University in Big City	Full University in Medium City
Responsibility	• Respond to demographic shift • Enhance global understanding to solve global problems • Provide SME with strong employees • Engage in societal discussion on technologies, integrate political sciences	• Integrate international graduates into German labour market, deliver international opportunities to them • Be part of global scientific community	• Support demographic society and its institutions • Contribute to sustainability in consuming and living	• Promote European idea • Solving international problems • Strengthen region by well-educated graduates	• Solve global problems • Educate global citizens • Prepare students for globalized world •	• Science – enhance human knowledge • Relate to regional economy
Effectiveness – Strategy Technology	• In doubt whether internationalization can be controlled • Selected networks to focus activities • Tenure Track appointment system: highly competitive approach to align resources	• Qualitatively controlled, no quantitative targets • Reputation of international partners • Alignment of efforts in committees •	• Unique strategy – attract people who deliberately choose University's approach • Leverage advantage of location and history • •	• Develop and update strategy in committee meetings • Align individual efforts •	• Leverage specific advantages of location, include organizational intelligence, employ bottom-up process • Leverage existing connections between University and city, align and incentivize individual efforts	• Qualitatively controlled, no quantitative targets: top-level research • Directed evolution • Leverage historical event • Strengthen profile and quality • Support for 3rd-party funding acquisition through structures

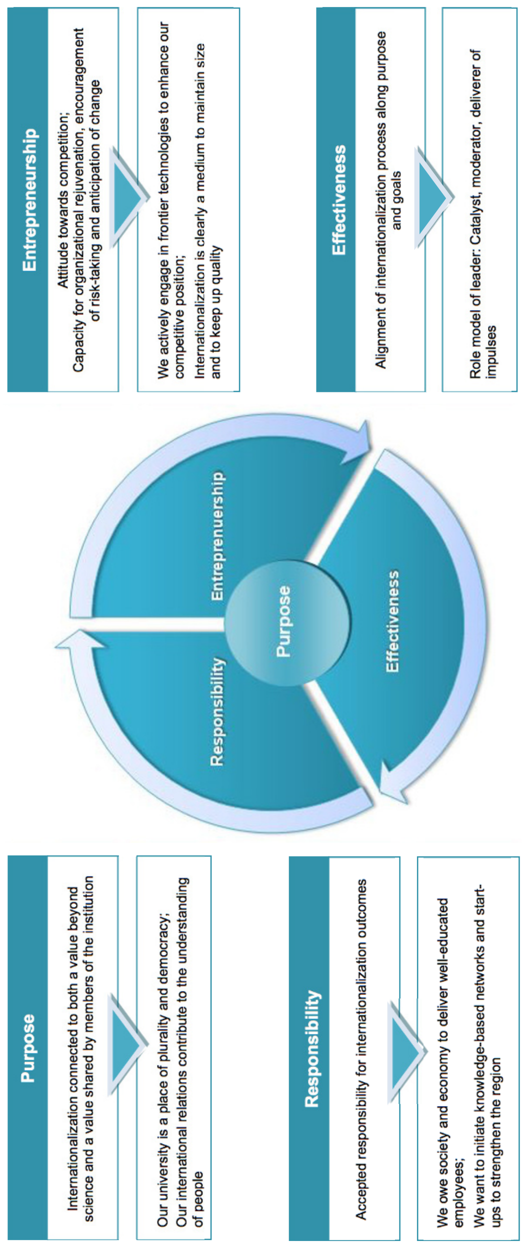

Fig. 28 Findings in the context of the Leipzig leadership model (author's own).

Summary and Conclusion

6

6.1 Management Summary

This research aims at explaining the internationalization behaviour of German public research universities by means of strategic management. After describing different dimensions of internationalization, it defines the internationalization outcome as the change in ratio of international students and change in ratio of international researchers. The topic is placed in the context of the demographic situation of Germany, where studies expect a lack of five million skilled employees by 2030 (Suder & Killius, 2011).

The first chapter sets the frame for the following analysis: internationalization is delimited against globalization by representing a deliberate process to include the international dimension in presence of nations and boundaries (Altbach, 2007). By contrast, globalization is defined as a market-driven phenomenon, blurring boundaries, denationalizing and creating global competition in higher education (Beerkens & Van der Wende, 2006).

The specifics of higher education in terms of management theory are presented with regard to information economics and challenges of leadership and management: The impact of **information economics** on higher education is presented: given the high complexity of higher education and its effect on individuals, there is a general consensus that students cannot judge the quality of universities (Monopolies Commission [*Monopolkommission*], 2000). This creates the case for accreditations by governments and rankings by independent institutions to provide guidelines for individuals to choose their university (Mause, 2007). **The challenges of leadership** originate in the field of tension between academic freedom and the idea of strategy-based approaches to internationalization, as well as in the governance structure of higher education in general and German Higher Education in particular (Bogumil, 2013).

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The levels of motivation to internationalize are differentiated and presented (Pinkwart & Czinkota, 2012): the federal government – responsible for the well-being of the entire country – is expected to look after macroeconomic effects as productivity-enhancement through university education, and impulses to contribute to solutions to the demographic challenges of the country. State governments are expected to focus on the specific situation of their state with regard to economic and demographic structure. Universities themselves find a high number of possible motivations: one being the absence of need for a motivation – as university education is international in essence (Altbach & Teichler, 2001). This research presents straightforward organizational motivations, such as the necessity of coping with demographic shift at the level of the organization – where international students can contribute to maintaining existing capacities, combined with the system of funding (in most states) being based on student numbers (In der Smitten & Jaeger, 2012), as well as non-financial motivations: to improve mutual international understanding or the contribution to solutions of global problems (e.g., climate change). Given the need for high-quality research and education – and the tendency of German students to choose a university near their home region (Middendorf et al., 2013) – the requirement to recruit internationally can be derived. Given the positive view on internationalization in literature, it is discussed whether an 'imperative to internationalize' exists – and it is shown that mechanisms of funding and research grants favour international activities.

The second chapter outlines existing theory and presents the framework conditions for the internationalization of German research universities. First, key models of internationalization and strategy are presented: internationalization is considered a gradual process of including international dimensions and engaging in international markets based on national and organizational strengths (Andersen, 1993). Strategy models are categorized by their focus, the following being presented: strategy perceived as a plan, the translation into organizational structures, the process of crafting the strategy, the absence of strategy, and the interrelation between strategy and culture. Additionally, selected models of internationalization of higher education are presented, with the following aspects extracted: Based on the general field of tension between academic freedom and strategic alignment, the benefits of internationalization strategies are presented and taken as a starting point for the first category of hypotheses: strategy and elements of strategic management, represented by internationalization strategies, structural elements of management and the institutionalization of internationalization. The second category is represented by the institutionalization of internationalization through international partnerships; the third by the impact of leadership; the fourth by external validation (rankings), and the fifth by properties of the universities' physical environment; a link to individual decision-making processes is created. The concept of Internationalization at Home is presented and related to the concept of the research.

The chapter concludes by providing an overview of the relevant environment of internationalization of German universities: Trends in higher education, such as the global knowledge economy and the emergence of new technologies, are evaluated according to their impact on the internationalization. The regulatory environment in 16 states with regard to internationalization is presented by an analysis of Higher Education Acts and University Development Plans of states, as well as the legislation and published plans of the federal government. Additionally, immigration law and its impacts on international students are presented. The key factors of impact are consolidated into a SWOT analysis to outline the competitive position of German higher education in the international markets.

As an interim conclusion, the chapter shows that German universities are well positioned: German Higher Education is considered as belonging to the top group of the world, with reforms since 2000 having increased organizational flexibility, and the Excellence Initiative having facilitated cutting-edge results in German research and international visibility. Additionally, the country offers a combination of a growing economy and an aging population – presenting opportunities for universities and students to deliver skilled immigrants to the German economy and to attract scientific talents to German universities.

The research gap is identified in two dimensions: no existing study could be found to evaluate the impact of strategic management on the internationalization of German universities on a quantitative basis including all universities, although a similar study was conducted by Ayoubi and Massoud (2007) on UK universities, and Hahn (2004) conducted case study research on a selected number of German universities. Additionally, the aspect of leadership of German universities is under-researched. Whereas for other countries studies on the impact of university leaders exist, no such study could be found for the German environment. In order to contribute to filling this gap, this research conducts a quantitative analysis of the impact of strategic management on the internationalization process of German universities in the next chapter and conducts interviews with leaders of key universities in Germany based on the Leipzig leadership model (Kirchgeorg et al., 2016).

Consequently, the following chapter operationalizes the process based on the following criteria: internationalization strategy as a binary variable capturing the fact of whether an internationalization strategy had existed in 2012; the relevance of internationalization mirrored in the mission statement by the ratio of content related to the topic; the degree of specialization captured by its self-definition in communicating specialization in its name, and size by student number. Institutionalization is operationalized by the number of double-degree and exchange agreements as well as the ratio of international scientific staff. Leadership impact is measured by the international experience of rectors derived from an analysis of their published CVs, external validation is translated into placement in globally relevant rankings (Times Higher Education and Shanghai Rankings), and Leiden publication ranking. The environment – derived from individual decision-making processes – is captured by the internationality and economic welfare (differentiated by target group) of the university surroundings.

Results show that:

1. **Specialization facilitates internationalization:** Specialized universities achieved a stronger growth in ratio of international students in the observation period than unspecialized institutions.
2. **University size correlates positively** to the growth in ratio of international students.
3. **International environments do not necessarily support the internationalization of the student body:** The ratio of people with a migrational background in the university's environment correlates negatively to the growth in ratio of international students.
4. **The number of exchange agreements correlates negatively** to the increase in ratio of international students.
5. **International reference of mission statements** correlates positively to the growth in ratio of international researchers.

Implications for practice and for the research are derived from the course of the evaluation: specialization is recommended to be further evaluated, including options for non-specialized institutions to present specialized knowledge and expertise in certain fields. With regard to size, it is also recommended to evaluate the reasons behind this finding in order to refine strategies and to reap the full benefit of this aspect. The unexpected finding of a negative correlation of international environments to growth of international student ratios is recommended to be further evaluated in order to decipher patterns of attraction of international students, also with regard to nationality mixes. The unexpected finding of a negative correlation between the number of exchange agreements and growth in ratio of international students is recommended to be further evaluated with regard to other outcomes of exchange agreements. Growth in ratio of international students may not be the only objective of exchange agreements. Under the assumption that exchange agreements will be integrated in the internationalization strategy, it is recommended to develop a system of targets in more detail. The finding that the content of mission statements correlates to the growth in ratio of international researchers is recommended to be used for the attraction of international researchers.

The second chapter points to shortcomings of existing theory, one of them as the research gap with regard to leadership in German universities in general, and in the internationalization process in particular. The chosen approach used demographic data to proxy leaders' impact on the internationalization outcome. Hambrick (2007) pointed to the fact that the thought processes of leaders are the real research question. The third chapter aims at closing this research gap by directly inquiring leaders' underlying ideas behind the internationalization process of their universities. In so doing, the chapter presents the Leipzig leadership model (Kirchgeorg et al., 2016) and its application to the internationalization process of German universities. Its components of purpose, responsibility, entrepreneurship and effectiveness are employed to interpret six interviews with key leaders of universities. The interviews reveal a diversity of perspectives in all dimensions of the model. Whereas all interviewees show a general consensus on the competitive nature of science, approaches to internationalization differ substantially: derived from a purpose outside the university, some universities use this purpose as a source of identity and self-definition, whereas for others, science is a means and end in itself and internationalization is considered an inherent quality of science. Similarly, the views on global competition represented by rankings show strong variations, ranging from the pursuit of awards by rankings, the deliberate decision not to participate due to a unique course structure, to the approach of using rankings as an instrument in the internationalization strategy: 'We have understood the functionalities of rankings – and we use them as an instrument' (Interviewee 6, personal communication, January, 2016). Overall, it can be remarked that all universities covered by interviews present a strong profile in their internationalization approach and actively manage their portfolio of strengths.

The study derives three categories of strategy towards internationalization: 'global leaders' defined by the aspiration to generally belong to the highest-ranked institutions in their field. 'Status quo optimizers' focus on the campus-based model of university, observing emerging innovations, gradually improving their processes and approaches. The 'nichers' are characterised by the development of a particular, unique approach to their field of science.

With regard to the future challenges for German universities, interview data as well as literature review presents these challenges to universities: the demographic shift in Germany, the impact of digitalization on society in general and universities in particular, as well as reliable and stable funding of universities in Germany. Interview data deliver a diversity of leadership styles, motivations and approaches, reflecting Birnbaum's (1992) assessment of the high complexity of universities.

The final chapter connects the findings of the study to latest developments in the internationalization of higher education: Christensen's (2003) and Christensen and Eyring's (2011) theory of disruptive innovation of higher education is presented and briefly discussed, as are Pinkwart's suggestions for reformed university funding based on a combination of study fees and scholarships for international students (2014b), and his idea of creating a new business model for universities in the field of integrating international students into the German labour market (2012b). The final conclusion acknowledges the relevance of universities in dealing with the key challenges of society and economy represented by uncontrolled migration and how society deals with it, the demographic challenge, the fundamental questioning of international cooperation and the related debate with regard to content and framework.

Limitations

In order to keep the focus and to define observable and measurable indicators, this research clearly introduced and used operationalizations, which included a degree of simplification. Within this frame, this research applied the above-described methods rigorously and reported results accordingly. This research fully acknowledges that the internationalization process of German universities is more complex than the presented models allow capturing. Thus, the limitations are described in this section, followed by the implications for further research. This research has defined expected factors of impact and – if the respective variable was not numerical – operationalized them in order to create measurable indicators. Other means of operationalization are possible, as described below.

Impact of internationalization strategy

This research chose a binary approach and separated between those universities with and those without an internationalization strategy in 2012. Thus, this approach does not capture the following aspects of internationalization strategies: the strategy process including development, discussion, implementation, and controlling of strategy (Dess et al., 2014, pp. 7-18). Additionally, the content of internationalization strategies and its correlation to results is not included. As the instrument of internationalization strategy was not common practice in 2012, this research delivers the insight that an internationalization strategy as such does not seem to have a measurable impact on the internationalization outcome in the defined sense. However, as practices of strategic management in the context of university internationalization become increasingly common, these limitations can be removed and represent implications for further research.

Impact of mission statements

This research chose to relate the word count of internationally related content in the mission statements to the internationalization outcome. Under the assumption that mission statements matter to internationalization, other forms of analysis are possible: As Flick (2009) denotes, Internet documents are part of the complex website architectures of institutions that could be used for additional research (pp. 276-278). This research focused on the content of mission statements and did not make a judgment on its presentation and integration into the university's self-presentation on its website. Consequently, a more complex approach to the evaluation of mission statements including analysis of website features, links, etc., could deliver other results.

Impact of international exposure of leaders

This research derived the hypothesis from the 'upper echelon theory' (Hambrick, 2007; Hambrick & Mason, 1984) that the international exposure of a university's leaders correlates to its internationalization outcomes; the study deliberately confined itself to measuring international professional exposure. Other definitions of international exposure, for example including international board memberships or international publications, could deliver other results. Additionally, the underlying assumption that leaders have a significant impact on the internationalization trajectory of their organizations could be tested along Bourgeois' (1984, pp. 587-588) hypothesis of organizational determinism and the idea that organizational trajectory is determined by industry structure and that leaders largely do not matter.

Impact of specialization

The criterion of specialization has been operationalized by categorizing the universities according to their name and its implication with regard to specialization. Given the complexity of students' decision-making processes and the tendency of human nature to reduce complexity, this was deemed a legitimate simplification. However, other levels of specialization are possible: non-specialized institutions do have the strategic option of specializing in certain fields, communicated through publication records, specialized degree programmes or international partnerships in the respective field. The inclusion of these types of specialization could refine the results.

Academic mobility

Academic mobility is generally under-researched: the decision-making processes of internationally mobile researchers, and consequently the key factors attracting them, are largely unexplored (Bedenlier & Zawacki-Richter, 2015, p. 186). As described above, this research derived its assumptions on the decision-making processes of international researchers from existing studies – no study is available on international researchers in German institutions and their decision-making process that led them to Germany. The data suggest either a more complex or a much simpler explanation for their decisions: the complex decision-making process would involve many more factors of impact, possibly including perception of countries, perception of educational systems, available career paths, and the option to be accompanied by a spouse and family or others.

The simple explanation may refer to a human need to belong to a reputable institution and to work with reputable and recognized colleagues. The latter aspect, internationalization driven by networks of scholars, cannot be captured by quantitative methods and can be explored by inquiring international researchers in Germany.

Interviews: Selection of interviewees and transcription

With regard to the qualitative analysis of interview data, the following limitations apply: Given the elite status of the interviewees and the limited amount of time available for research interviews, the number of interviews is limited to six. The contact with all interviewees originated from within the supervisor's and the University's network, which may induce an element of bias (Saunders, 2012, pp. 35-38). Demand for an entirely unbiased, purposive sampling may thus not fully be met, as all interviewees originate in the network of the supervisor. In order to receive the interviewees' approval for the interview data, transcription captured verbalization only, whereas Kvale and Brinkmann (2009, pp. 201-239) offer other forms of transcription including nonverbal signals of the interviewees – the inclusion of these signals, as affected by the interviewees, may deliver additional insights.

Implicit assumption: The more internationality, the better

Given the topic of this research, an implicit assumption appears to be made that a higher ratio of international students or researchers is to be achieved and is generally preferred. Internationalization of the student body and scientific staff undoubtedly entails multiple benefits, as presented by Van der Wende (1996, p.193). However, different universities may require different approaches according to their portfolio of subjects, their organizational history and culture, as well as the interest their state and economy have in the environment.

6.2 Implications for Research

This research has explored internationalization strategies of German universities and has employed a number of limiting assumptions, as stated above. Both limitations and the process of work have opened the perspective on additional aspects, which are presented as follows:

Specialisation and profile

As presented above, this research has employed a simplified approach to capturing specialization by using the universities' names. It is fully acknowledged that many other forms of specialization exist and could be used by universities in their further internationalization. Pinkwart and Czinkota (2012) draw the parallel to the corporate world, where specialization has delivered good results; universities have the opportunity to become expert institutions in one field by employing their asset of being multidisciplinarian. The authors proclaim that universities should present the advantages they bring to their environment, especially to corporate partners in regard to delivering this competence (p. 259). Braunerhjelm (2008) adds empirical data showing that interplay of local industries and universities based on chosen specializations can deliver valuable impulses for strengthening the local economy (pp. 270-272).

Meffert and Bruhn (2012) assert that specialization should be defined from the perspective of the customer (p. 157). In the context of this research, international students and international scientific staff are considered customers, as it is the declared target to attract high-quality people from these groups. Erhardt and Von Kotzebue (2016) acknowledge the challenges of applying concepts from other industries due to the specifics of higher education with regard to independence in research and teaching, self-government and the necessity to adjust performance indicators (pp. 334-336). The authors present the brand personality as a possible solution for differentiating universities in competition, and define university mission statements as an indicator for this concept. In a cluster analysis of all German universities, the authors come to the conclusion that German higher education institutions rarely distinguish themselves strongly from their competitors, consequently the authors assess the necessity for action in this field (pp. 333-355). Additional research could thus integrate this research's finding that mission statements matter to international researchers, the idea of a distinct brand personality, as well as additional primary data gathered through direct surveys with international researchers.

Mission statements

This research shows that the degree of reference to internationalization of mission statements correlates positively to the growth in ratio of international researchers. This finding suggests the need for further inquiry about international scientists' motivations and decision-making processes. As mission statements may draw their impact from the process of their creation rather than their content (Bartkus et al., 2000, p. 24), the integration of international scientists into the process of mission statement development, as well as the evaluation of existing mission statements by this target group, may create new insights towards employing these instruments for the further internationalization of researchers.

Role of networks

Internationalization is largely built upon personal and organizational networks (Zucchella et al., 2007, p. 270), and Pinkwart (2012b) has emphasized the relevance of networks to internationalization: achievement-seeking people are attracted by like-minded companions. Transparency provided by a combination of scientific publications and technology-driven opportunities for networking allows students and researchers to target their desired working environment (p. 11). Thus, the role of networks in both the internationalization of student body and international scientific staff can be further explored by researching decision-making processes and the role of networks in this context. The interviews delivered an idea of underlying processes for attracting cutting-edge researchers: 'first-class people attract first-class people – whereas second-class people attract second-class people' (Interviewee 6, personal communication, January, 2016). Consequently, additional research could decipher and document trajectories of reputable researchers and the role of networks in their decision to join universities.

Diversity

Diversity in the body of researchers and students is generally perceived as an asset and as contributing to enhanced and additional qualities: Van der Wende (1996) denotes a number of benefits for students, at the cognitive level they gain international knowledge, a wider knowledge in their subject, and they become more flexible analytically. At the level of attitudes, their thinking is enhanced by the global dimension productively challenging habits of their home country. At the level of skills, they learn to cooperate with people with fundamentally different attitudes and backgrounds – expressed as 'intercultural competence' (p. 193).

However, the presence of international students is not always perceived as an advantage: this could be caused by the presence of a large number of students from one cultural background, such as other countries reporting challenges when integrating Asian students (Belkin & Jordan, 2016, March 17), which is driven by differing cultural norms with regard to academic standards, communication skills of students and extreme pressure on students to succeed at nearly any cost (Barker, 2015, October 19). Additionally, students from large nationality groups are sometimes reported to be reluctant to interact with other nationalities, even including faculty (Horstmann, 2014, December 29). Hermann (2014, March 28) underscores that integration works better if one nationality constitutes low numbers – as students are forced to interact with students from other nationalities. Thus, the discovery of factors contributing to diversity as an asset represents an implication for further research. Hence, further research could lift the assumption of this research that diversity of international students is generally an advantage, and could develop framework conditions that would enable all stakeholders to reap the potential benefits of diversity. This could include best practises on cross-cultural management, integration of different nationalities into student body and faculty, as well as the role of networks in this context.

University partnerships

This study shows that a higher number of university exchange partnerships do not necessarily facilitate the internationalization of the student body: other objectives, such as enhancing the diversity – in the sense of reaching the broader mix of nationalities on campus – or the creation of links to particularly reputable institutions, are possible. Additional research could explore university partnerships and their outcomes in order to deliver criteria for their assessment and for the formation of strategic partnerships. The latter require the development of a generally accepted definition in order to create common ground for research and the discussion of results.

Criteria for success

Given the complexity of higher education in general and its internationalization in particular, it is a challenge to measure its success. As Birnbaum (1992) denoted, there is no generally accepted metric to measure the success of higher education (p. 11). As shown in this research, the ratio of international students and researchers, as well as its development over time, can be used as one criterion – but many other aspects deserve to be reflected in indicators. Pinkwart (2014b) presented suggestions for criteria: both reflect the needs of external stakeholders: due to the demographic challenge, the German economy needs skilled immigration – thus universities could be measured on their ability to place international graduates into the German economy. Additionally, international students show significant dropout rates that could be reduced by respective measures taken by universities (pp. 36-37).

Criteria for success are likely to differ by type of institution: as outlined above, different disciplines put a different emphasis on the internationalization of both student body and researchers. Additional research could deliver ideas for a more tailored approach to internationalization, for example by defining peer groups and by deriving quantitative and qualitative benchmarks accordingly.

If an alignment of the universities along societal needs is expected, the needs of the German economy for graduates of specific disciplines will also be taken into account. It would thus be beneficial to evaluate the contribution of German universities to societal problems in the fields of integration of skilled migrants, and to develop a possible system of targets for the internationalization of universities. This could serve multiple purposes: a proposed system of targets could be the starting point for discussions with ministries and the economy on a business model for universities in this field. Additionally, universities could use it to demonstrate the value they generate for society in the sense of earning their 'license to operate' (Drucker, 2011, p. 79).

Role of strategy

Strategy-based internationalization has received strong support from institutions like ministries and funding bodies within the last few years; it can be assessed that universities are largely expected to conduct internationalization based on their respective strategy (see Table 4: *Overview of Positions of State Governments by Analysis of their Website*). In terms of the recent past, this research does not find a significant correlation between the existence of an internationalization strategy and the internationalization outcome in the defined sense. The qualitative part shows that instruments of strategic management and internationalization strategies are being used in the selected universities. In order to deliver additional insights for internationalization strategies, the following aspects could be used for further research: as stated by Mintzberg et al. (2005, pp. 176-222), strategy draws its impact strongly from its process of creation, not only from its existence. Thus, additional research could evaluate the strategy-building processes in universities and benchmark these against outcomes. Content-wise, internationalization strategies can be categorized in order to decipher patterns and correlations between content and outcome, best practises can be identified, and the approach of Andrews, Boyne, and Walker (2006) can deliver a framework for this analysis (pp. 55-57).

Role of leadership

The challenge of university leadership is acknowledged and under-researched, with Morrill (2010) considering university leadership a 'repressed theme' (p. 4): Universities all over the world serve the tripartite of Teaching, Research and Service. However, these three imply entirely different structures: whereas teaching requires coordination between interrelated subjects and topics, research largely relies on the effort of individual scholars, and service quality is enhanced by central coordination (Birnbaum, 1992, p. 12). Findings from interviews suggest that a body of self-developed theory from leaders exists, which could be collated to create leadership theory in the German academic environment. The Leipzig leadership model delivers a framework for further exploring leadership in the German academic environment (Kirchgeorg et al., 2016), which can be used to structure a future research. The organizational purpose of the model could represent an invaluable instrument for aligning stakeholders and for attracting compatible international students and researchers (Pinkwart & Kirchgessner, 2017, January 20). Thus, additional research could employ the Leipzig leadership model as a framework and create a model for the role of leadership in the internationalization process of German universities, thereby enhancing available theory on leadership of the internationalization process.

6.3 Implications for Practice

In addition to the described implications for research, largely building on the limitations of the chosen approaches, this research delivers a number of concrete suggestions for practice, which are summarized as follows:

Specialization

This research shows that specialization communicated in the university's name correlates positively to the growth in the ratios of international students and international researchers. Thus, it can be taken as a recommendation for practice that – if possible in the existing framework conditions of the institution – a specialization indicated in the university's name facilitates growth in ratio of international students and researchers. As described above, additional research can deliver insights into further options for specialization, which can be used to shape institutional profiles. As Erhardt and Von Kotzebue (2016) denote, this requires a combination of market research and the definition of organizational strengths (pp. 354-355).

Internationality of environment

Unexpectedly, the correlation between the internationality of the environment and the growth in international student ratios was negative. This finding represents implications for both universities in regions with above-average international environment (mainly bigger cities in the western part of Germany) and universities in regions with below-average international environment (universities in East Germany, excluding Berlin). For the first group, data suggest that the high ratio of people with a migrational background is perceived as a relative disadvantage in comparison to regions with lower levels of internationality.

Regions with below-average internationality seem to have a relative advantage, which – based on thorough additional research – can be used for their marketing strategies. Internationally, in particular students from large nations like India and China face the situation of being with many compatriots. Although deliberately studying abroad, the composition of the student body may not differ enough from home universities in the students' perspective. Especially achievement-seeking students are likely not to be content with this situation and to look for environments facilitating their intercultural competence, communication with faculty and fellow students, and their academic performance.

Although a high ratio of internationality may be perceived as a disadvantage, it can be evaluated whether the composition of international inhabitants represents a competitive advantage in particular regions. For example, cities with strong links to the Turkish community may represent opportunities in recruiting Turkish students, which could employ the network effect described by Bessey (2012, p. 21).

Study fees

Along Pinkwart and Czinkota's (2011, June 22) idea of 'the university of the future', which delivers high quality in teaching, research and knowledge transfer (p. 10), the attraction of achievement-seeking students is essential. Pinkwart (2014b) assesses that the absence of study fees may be a barrier to attracting achievement-seeking students, as they generally expect quality education to have a positive price (p. 37). This assessment is supported by microeconomic theory: consumers assume a correlation of quality and price and thus expect a product of a higher price to have a superior quality. People able to afford the higher-priced product prefer it as a means to distinguishing themselves by the use of a product linked to superior quality and prestige (Pindyck & Rubinfeld, 2015, pp. 191-193). Herrmann (2005) points to the example of Australia, where the introduction of study fees has created multiple benefits, such as increased influx of students, enhanced quality, and additional income for the universities. Furthermore, he adds that high-quality universities generally have the right to select their students (p. 7).

In this context, Pinkwart's (2014b) suggestion of combining the introduction of study fees for international non-EU students with scholarships for talented students (p. 37) could deliver multiple benefits, such as communicating quality through price and focusing on attracting talented, achievement-oriented international students. This approach could create a self-reinforcing attraction of achievement-seeking international students, as this group seeks universities with like-minded fellow students, thus the quality of the student population can be considered a relevant determinant of university quality and is likely to have a considerable impact on the ability to attract strong international students (Winston, 1999, pp. 25-27).

Consequently, the combination of study fees for international students with scholarships for talented candidates could deliver multiple benefits by creating additional income and attracting achievement-seeking students. Thus, if state law allows, it is recommended for practice to explore opportunities by charging fees to non-European international students and to combine this action with a scholarship programme for talented students.

Employability and integration of graduates into German labour market

As outlined above, the country's key challenges include coping with demographic change and strengthening the country's innovative capacity and competitive position in the world. Both aspects have an interface with the internationalization of German universities: the integration of international graduates of German universities into the German workforce can contribute to a solution to the demographic challenge. Statistics show that less than 8,000 non-European students have applied for a residence permit for job search (BAMF, 2016, pp. 79-80). In relation to the expected shortage of skilled labour by two to four million in 2020 (Suder & Killius, 2011, pp. 12-13), Glorius (2016) assesses that these numbers are low and the potential is not yet explored (p. 363) – thus, the societal need, combined with the competencies of universities to educate young people, creates an opportunity for German universities.

In this context, Pinkwart's (2012b) suggestion for an additional business model for universities provides an interesting idea for integrating organizational and societal interest: he suggests that German universities could create a source of income by facilitating international students' finding employment upon graduation (p. 23).

This contribution to the societal problem would deliver high value to society and consequently enhance acceptance of public funding for universities and renew its 'license to operate' in the sense of the Leipzig leadership model (Kirchgeorg et al., 2016, pp. 16-17). It is thus recommended to proactively explore opportunities in the field of transition of international graduates into the workforce and to evaluate respective business models.

International graduates as target group

Pinkwart (2014b) has suggested approaches towards degree-seeking students: international graduates from German universities returning to their home country are likely to be good ambassadors for Germany in conveying a positive message about the country. He adds that students remaining and working in Germany deliver the biggest benefits to the German economy (pp. 36-37). This assessment is underscored by a study conducted by Prognos on behalf of the DAAD, based on a detailed calculation of income streams and their effect on public budgets: the spending of seven students funds the employment of one person; if the student can be integrated into the workforce upon graduation, effects are much stronger and more complex: the person contributes to the value chain of the national economy (experts estimate a minimum of €50,000), consumes (with additional positive effects) and pays taxes. Overall, authors concede that an exact calculation seems impossible – but it can be expected that graduates integrated into the German economy deliver a substantial contribution to national wealth (Münch & Hoch, 2013, pp. 85-89).

Thus, it is recommended to systematically explore opportunities to serve societal needs and to create new business models for the institution, and to document records of graduates worldwide to present the value delivered to society.

Impact of digitalisation

Drucker predicted in 1997 that '30 years from now, big university campuses will be relics' (1997, October 3), assuming that innovative ways of learning would replace big campus-based universities. Pinkwart and Czinkota (2012) have pointed out that new technologies have the capacity to fundamentally change higher education (p. 255). Christensen (2016) has defined the term 'disruptive innovation', differentiating it from sustaining innovations that act within the current state-of-the-art framework of the industry. He contrasts disruptive innovations as being revolutionary and discontinuous (p. xviii). Christensen and Raynor (2003) differentiate between 'low-end disruption', serving customers who accept lower quality or performance at lower price, and 'new-market disruption', targeting markets that have not been served so far (pp. 23-45). In the context of the internationalization of higher education, this means reducing barriers (no need to physically attend university) and reducing costs (due to zero tuition in most states, only cost of living can be reduced) – and thus targeting additional students. Integrating the theory of disruptive innovation, Christensen and Eyring (2011) suggest that universities should employ new technologies in order to enhance quality and reach a larger number of students – by means of a culture of innovation and entrepreneurship – accompanied by a clear-cut system of performance indicators (pp. 379-401).

Additionally, digitalization provides multiple benefits that can be used for more intensive and more flexible exchange and cooperation with partners worldwide. This can be achieved by use of social networks, and platforms for collaboration and learning – thus enhancing teaching quality. Furthermore, the use of these instruments creates positive effect on university reputation (Schmid & Baessler, 2016, p. 13). Pinkwart (2014a) proclaims that digitalization should be actively managed by leadership (pp. 4-7), Kane et al. (2015) agree and emphasize the relevance of strategy as the key driver of digital transformation: The authors define proactively taking risks, engaging in new ideas and transforming the business model into the digital age as necessary to successfully cope with technologically induced change (pp. 14-15). It is thus recommended for practice to observe emerging changes in higher education, and to constantly work on an institutional strategy in this field. This concept is described by the term 'teaching the digital natives', which reflects both the Internet-affinity of the young generation and their need to adjust to a working environment that is increasingly digitalized (Prensky, 2010, pp. 185-189). Thus, the enhancements of existing formats in research and teaching through digital content and means of delivery is likely to serve as a positive differentiator in attracting achievement-seeking students.

6.4 Conclusion

Uncontrolled migration

Uncontrolled migration is expected to be one of the key themes of the 21st century; Friedman (2016) assesses failed states as the key reason for a large number of people trying to leave their country at almost any cost (pp. 244-276). In this context, universities can contribute to solutions by educating refugees who subsequently return to their countries and help to build stable and prosperous societies – and to support the integration of refugees who decide to stay in Germany. For example: the University of Konstanz educates Syrian refugees holistically, including fostering the rebuilding of trust in human interaction and the development of ideas for a process towards peace in their home country (Preuss, 2017, July 1, p. 47). Thus, German universities are already contributing to creating better perspectives for the victims of political unrest and instability. Those refugees, in the position of staying in Germany and fulfilling the entry criteria for academic education, can be educated in order to contribute to the solution of the demographic challenge.

Demography

The foreseeable – and expectedly accelerating – decline in the German population has been identified as a central problem, causing reduced investment, human capital, and income (Kaufmann, 2005, pp. 13-14; pp. 67-86). Fritsch (2015) underscores universities' capacity to deliver impulses, particularly for regions with declining populations (p. 296), while Pinkwart (2012b) describes the new role of universities as 'innovation engines' (p. 11). In this context, the internationalization of universities delivers multiple benefits: universities can attract strong students from other countries, strengthening the student body and – if the successful students decide to stay in the country – enhancing universities or the workforce in Germany.

Debate on the internationalization of society and the economy

Peaceful international cooperation, trade and exchange each reflect the values of Germany and are in its vital economic best interest (Federal Government of Germany [*Bundesregierung*], 2012b, pp. 5-6; pp. 29-39). This conviction and the derived guideline for international policy are increasingly questioned by nationalist movements (such as the Alternative for Germany [*Alternative für Deutschland* (AfD)], the Trump administration in the United States, the Brexit movement and others), which are using the technique of 'fake news', defined as deliberate misinformation of the public (Brodnig, 2017). Universities can deliver benefits at different levels: their successful recruitment, education and integration of foreigners can serve as a blueprint for society – and the virtue of universities in striving for truth based on facts (Jaspers, 1980, pp. 28-29) can suggest a framework for the debate. Thus, it can be expected that internationalization remains a focal point of public interest and a field in which universities can deliver high value to multiple stakeholders.

Appendices

Appendix A: Online Quantitative Questionnaire – German and English

Sehr geehrte Damen und Herren,

Deutschland zählt zu den attraktivsten Gastländern für internationale Studenten, deutsche Universitäten erreichen Rekordzahlen an internationalen Studenten.

Die HHL Leipzig führt eine Studie zu „Internationalisierungsstrategien deutscher Universitäten“ durch. Ziel ist es, folgende Fragen zu beantworten

- Mit welchen Strategien sind deutsche Hochschulen international erfolgreich?
- Welchen Einfluss haben Rahmenbedingungen, wie die Attraktivität des Hochschulortes oder die Internationalität des Umfeldes?
- Welche Maßnahmen der Hochschulen unterstützen die Internationalisierung der Studentenschaft?

Sie erhalten auf Wunsch gern Studie und Daten. Zusätzlich stehen wir gern für einen weitergehenden Austausch über das Thema zur Verfügung.

Bitte nehmen Sie sich ca. 10 min. Zeit - Sie unterstützen damit die Erforschung dieses interessanten Feldes.

Mit freundlichem Gruß, Ulrich Bremer
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HHL Graduate School of Management Lehrstuhl für Innovationsmanagement und Entrepreneurship, Prof. Dr. Andreas Pinkwart

U. Bremer, *Internationalization Strategies of German Universities*, Schriftenreihe der HHL Leipzig Graduate School of Management,
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1. **<u>Strategie zur Internationalisierung</u>**

Besteht an Ihrer Universität/Hochschule eine Strategie zur Internationalisierung? Wenn ja: Bestand diese Strategie bereits im Jahre 2012?

2. **<u>Organisationale Unterstützung der Internationalisierung</u>**

Gibt es in Ihrer Hochschule seit 2012 Organisationseinheiten, welche die Internationalisierung fördern und systematisch betreiben?

-

3. **<u>Sogenannte MOOCs (Online Kurse) bieten technologisch die Möglichkeit, internationale Studenten zusätzlich zu betreuen und vorzubereiten.</u>**

4. **<u>Bietet Ihre Hochschule besondere Dienstleistungen oder Infrastruktur für internationale Studenten/Doktoranden an?</u>**

- Unterstützung bei der Bewerbung
- Unterstützung beim Visa Prozess
- Unterstützung bei der Wohnungssuche
- Unterstützung bei der Integration
- Deutschkurse
- ______________________

5. **<u>Bietet Ihre Hochschule Studiengänge an, die vollständig in englischer Sprache unterrichtet werden?</u>**

Wenn ja:
- Wie viele rein englisch sprachige Studiengänge bietet Ihre Hochschule an?
- Wie viele Studenten sind in diese Studiengänge immatrikuliert?

6. **<u>Internationale Partnerschaften</u>**

- Wie viele strategische Partnerschaften unterhält Ihre Hochschule?
- Wie viele Austausch – Partnerschaften unterhält Ihre Hochschule?
- Wie viele Doppel-Abschluss Partnerschaften unterhält Ihre Hochschule?

7. **<u>Statistischer Teil:Bitte geben Sie – wenn möglich – die Daten des Wintersemesters 2013/2014 an.</u>**

- Wie viele Doktoranden sind an Ihrer Hochschule eingeschrieben?
- Wie viele der Doktoranden sind international, d.h. diese haben keine deutsche Staatsangehörigkeit?
- Wie viele Studiengänge bietet Ihre Hochschule insgesamt an?

Für Fragen wenden Sie sich gern an Ulrich Bremer unter ulrich.bremer@hhl.de oder 0172 3096669.
Vielen Dank für Ihr Interesse und Ihre Unterstützung, mit freundlichem Gruß,
Ulrich Bremer, Doktorand
E-Mail: ulrich.bremer@hhl.de
HHL Graduate School of Management Lehrstuhl für Innovationsmanagement und Entrepreneurship, Prof. Dr. Andreas Pinkwart

Ladies and gentlemen,

Germany belongs to the most attractive host countries for international students; German universities reach record figures in enrolment of international students.

The HHL Leipzig is conducting a study on “Internationalization strategies of German universities”, which aims at answering the following questions:

- Which strategies create the success of German universities?
- What is the impact of framework conditions such as the attractiveness of the city or the internationality of the environment?
- Which actions do universities take to facilitate the internationalization of the student body?

If you wish, you will receive the study. Additionally, we are available for an additional exchange on the topic.

Please take approximately 10 minutes time and support the research on this interesting topic.

1. **<u>Internationalization strategy</u>**

Does your university have an internationalization strategy in place? If so, was the strategy in place in 2012?

2. **<u>Organizational support of internationalization</u>**

Are their organizational units in your university since 2012 which facilitate internationalization and conduct the process systematically?

- Vice rector international
- Special representative internationalization
- Advisory board internationalization
-
-

3. **<u>Has your university used massive open online courses (MOOCs) for internationalization purposes?</u>**

4. **<u>Does your university offer special services or infrastructure for international students or doctoral students?</u>**

- Support for application
- Support for the visa process
- Support for finding accommodation
- Support for integration
- German classes
- ______________________

5. **<u>Does your university offer courses which are taught completely evenings Median? If so:</u>**

- How many English-medium study programmes does the university offer?
- How many students are enrolled in these study programmes?

6. **<u>International partnerships</u>**

- How many strategic partnerships does your university have?
- How many exchange partnerships does the university have?
- How many double-degree partnerships does the university have?

7. **<u>Statistical part: please give – if possible – data from Winter Semester 2013/2014</u>**

- How many doctoral students are enrolled in your university?
- How many of these doctoral students are international, in the sense of having a non-German passport?
- How many study programmes does your university offer in total?

Appendix B: Interview Questionnaire – German and English

Interviewleitfaden Internationalisierungsstrategien deutscher Universitäten

In diesem Teil der Dissertation soll es darum gehen, mit welchen Ideen Sie die Internationalisierung Ihrer Universität gestalten. Es soll folglich nicht um die Strategie als solche gehen, (diese wurde im vorherigen Teil behandelt), sondern um Ihre zugrundeliegenden Ideen in folgenden fünf Bereichen):

1. Ihre Sicht auf die **Internationalisierung** (Seite 2)
2. Das **Selbstverständnis** der Führungskräfte Ihrer Universität im Hinblick auf die Internationalisierung (Seite 3)
3. Das von Ihnen definierte, relevante **Umfeld** der Internationalisierung (Seite 4)
4. **Technologien**, welche neue Möglichkeiten eröffnen und möglicherweise Veränderungen der Universitäten auslösen (Seite 4)
5. Ihre Sicht auf **Strategien** und deren praktische Relevanz in der Internationalisierung (Seite 5)

Das Interview wird aufgenommen, transkribiert und Ihnen zur Freigabe vorgelegt. Für die Dissertation wird es in die englische Sprache übersetzt; gern übersende ich Ihnen auch die Übersetzung zur Freigabe.

1. **Themenfeld Internationalisierung**

   Im ersten Bereich geht es darum, Ihren Ansatz und Ihre Zielgrößen für die Internationalisierung zu erfragen: Die Literatur spricht von einem „Imperativ zur Internationalisierung“ (Altbach, 2013, pp. 1–10), diese wird kaum kritisiert (Lanzendorf, 2013, p. 1), und als Megatrend wahrgenommen (Teichler, 2007, p. 37), dem sich Hochschulen kaum entziehen können:

   a. Auch wenn sich die Fachwelt weitgehend in der positiven Einschätzung einig ist, gibt in aller Regel Widerstand gegen Veränderungen. Wie ist dies in Ihrer Universität und wie gehen Sie damit um?
   b. Wo liegt – Ihrer Ansicht nach – der wichtigste Nutzen der Internationalisierung für Ihre Universität, z.B. Diversität, Beitrag zu einem gemeinsamen globalen Verständnis, Beitrag zur Lösung internationaler Probleme oder ein Ausweg aus der „demographischen Herausforderung“ in Deutschland
   c. Welche sind Ihren Zielgrößen, z.B. ein Ziel-Anteil internationaler Studenten oder Forscher, nach denen Sie die Internationalisierung steuern?
   d. Wo liegen Ihre Ziel-Märkte für die Internationalisierung?
   e. Welchen Einfluss hat die Internationalisierung auf die Gesamtziele Ihrer Universität?

2. **Themenfeld Identität der Führungskräfte**

   Im nächsten Bereich geht es um das Selbstverständnis der Führungskräfte der Universität. Die Management Literatur betont die Bedeutung der Identität der Führungskräfte, insbesondere bei nicht-gewinnorientierten Institutionen (Drucker, 1990), die Leitung von Universitäten wird als besonders herausfordernd anerkannt Birnbaum (1992, pp. 3–4):

   a. Wie definieren Sie Ihre Rolle im Internationalisierungsprozess? Sehen Sie sich eher als Impulsgeber, Moderator, Direktor im Sinne von Richtung vorgeben oder als „Vorstandsvorsitzender“, der Entscheidungen trifft?
   b. Gibt es für Sie im Themenfeld Internationalisierung einen Kern-Wert, eine Kern-Aussage, die Sie besonders verfolgen, z.B. die Idee einer offenen Gesellschaft, der globalen Community der Wissenschaft oder …?
   c. Wie würden Sie Ihre Führungs-Rolle auf der Skala (1 sehr partizipativ, 10 sehr direktiv) „sehr partizipativ“ zu „sehr entscheidungsorientiert/direktiv“ einschätzen?

3. Themenfeld Umgebung

Im nächsten Bereich geht es darum, wie Sie Ihr relevantes Umfeld definieren: Die Management Literatur betont stets die Bedeutung des Umfeldes und dessen Definition durch das Management (Thompson & Strickland 1999, pp. 89–90), im Sinne von „die Perspektive bestimmt wesentlich mit, was wahrgenommen wird".

a. Wie definieren Sie für Ihre Universität die relevante Umgebung?
b. Welchen Einfluss haben die Exzellenz-Initiative, internationale Ranking und der Markt für internationale Studenten und Forscher auf Ihre Universität?

4. Themenfeld Technologie

Im nächsten Feld geht es darum, wie Sie und Ihre Universität mit Technologie und davon getrieben Veränderungen umgeht. Zahlreiche Autoren sehen in kostenlos angebotenen Online Kursen, sogenannte MOOCs (Massive Open Online Courses) eine Entwicklung, welche Universitäten stark verändern könnten (Friedman 2013, pp. 1–3). Deutsche Universitäten scheinen bislang eher zurückhaltend, sich hier zu engagieren. (Michels, Schäfer, Schifferings, Schnabel, & Wagenfeld 2014, p. 54):

a. Wie verändern neue Technologien Ihre Internationalisierungsstrategie?
b. Wie fördern Sie den Einsatz von Lern-Technologien?

5. Themenfeld Strategie

Im nächsten Bereich geht es darum, ob und wie Sie die Strategien und die Konzepte des strategischen Managements für den Internationalisierungsprozess Ihrer Universität nutzen und was Ihre persönliche Meinung darüber ist.

Die Management Literatur betont die Strategie für größere, komplexe Organisationen quasi als Bedingung für Erfolg (Martinez & Wolverton 2009, pp. 8–9) , die Förderpraxis für Hochschulen in Deutschland legt eine Internationalisierungs-Strategie nahe. Die Literatur attestiert deutschen Universitäten, oft auf die Entwicklung von Strategien zu verzichten. (Huisman & Van der Wende 2005, p. 26; Hahn 2005, p. 26)

a. Welche praktische Relevanz hat in Ihrer Universität die Strategie? Ist „Strategie" ein Instrument, mit dem Sie arbeiten?
b. Internationalisierung entsteht oft auf Grundlage persönlicher Beziehungen: Wie beziehen Sie die Aktivitäten der Lehrstühle ein? Wie fördern Sie diese?
c. Welche Vision haben Sie für Ihre Universität im Jahre 2025 im Hinblick auf die Internationalität?

Questionnaire on internationalization strategies of German universities

This part of this dissertation aims at capturing your experience of the internationalization of universities. Consequently, the strategy as such is not the centre of interest (this aspect was covered in the previous part) but your underlying experience in the following areas:

1. Your view on internationalization
2. The self-conception of leaders of your university with regard to internationalization
3. Your defined, relevant environment for internationalization
4. Technologies that create new opportunities and may cause change in the university
5. Your view on strategies and their practical relevance for the internationalization

The interview will be recorded, transcribed and sent to you for approval. For the dissertation it will be translated into the English medium, please indicate if you wish to see the translation as well.

Internationalization

The first part aims at capturing your approach and your target figures for internationalization: literature uses the term 'imperative to internationalize' (Altbach, 2013, pp. 1-10), which is hardly criticized (Lanzendorf, 2013, p. 1), perceived as a megatrend (Teichler, 2007, p. 37) and universities can hardly escape from it:

a. Although experts largely agree on perceiving internationalization positively, generally you find resistance against change; how do you deal with this?
b. What are your target figures, for example a target ratio of international students or researchers that are used to control the internationalization process?
c. What are your target markets for internationalization?
d. What is the influence of internationalization on overall objectives of your university?

Identity of leaders

The next part covers the self-conception of university leaders. Literature on management emphasizes the relevance of leaders' identity, especially in the context of non-profit institutions (Drucker, 1990); the leadership of universities is recognized as particularly challenging (Birnbaum, 1992, pp. 3-4).

a. How do you define your role in the process of internationalization? Would you perceive yourself either a catalyst, a moderator, a director in the sense of deciding to give direction, or as CEO who makes decisions?
b. Is there a key value in the field of internationalization, which you pursue in particular, for example the ideas of an open society, the global community of scholars, or…?
c. How would you rate your leadership role on a scale of 1 to 10 (1: very participative, 10: very directive)?

Environment

The next section is about how you define your relevant environment: management theory emphasizes the relevance of environment and its definition by management (Thompson & Strickland 1999, pp. 89-90) – in the sense that the perspective predetermines what is perceived.

a. How do you define the relevant environment of Yale University?
b. What is the impact of the Excellence Initiative, international rankings and the market for international students and researchers on your university?

The next section aims at capturing how you and your university deal with technologies and technology-driven change. Numerous authors consider online-courses offered free of charge, so-called massive open online courses (MOOCs), a development that could change universities significantly (Friedman, 2013, pp. 1-3). German universities seem rather reluctant to engage in this field. (Michels, Schäfer, Schifferings, Schnabel, & Wagenfeld, 2014, p. 54).

a. How do new technologies change your internationalization strategy?
b. How do you promote the use of learning technologies in your university?

Strategy

The next and final section covers strategy, concepts of strategic management in the context of internationalization, how you and your university make use of these concepts, and your personal perception of these.

Management theory emphasizes strategy of large complex organizations as a quasi-prerequisite of success (Martinez & Wolverton, 2009, pp. 8-9), funding guidelines in Germany suggest an internationalization strategy. Literature assesses that German universities often refrain from using strategies (Huisman & Van der Wende, 2005, p. 26; Hahn, 2005, p. 26).

a. What is the practical relevance of strategy in your university? Is strategy an instrument that is in use?
b. Internationalization is often built on personal relationships: how do you include activities of chairs? How do you encourage these activities?
c. What is your vision for the university with regard to internationalization in the year 2025?

References

Altbach, P. G. (Ed.). (2013). *The International Imperative in Higher Education*. Rotterdam: Sense Publishers.

Drucker, P. F. (1990). *Managing the nonprofit organization*. Oxford: Butterworth-Heinemann Ltd.

Friedman, T. L. (2013, January 28). Revolution hits universities. *New York Times*, pp. 1–5.

Hahn, K. (2005). German Universities in the Process of Globalisition, Europeanisation and Internationalisation. *On Cooperation and Competition II. Bonn: Lemmens*, 19–38.

Huisman & Van der Wende (Ed.). (2005). *On Cooperation and Competition II: Institutional Responses to Internationalisation, Europeanisation and Globalisation.*

Lanzendorf, U. (2013). *Globalisation in higher education: manifestations and implications*.

Martinez, M., & Wolverton, M. (2009). *Innovative strategy making in higher education*: IAP.

Michels, B. (Ed.). (2014). *Die Internationale Hochschule: Die Internationalisierung der deutschen Hochschulen im Zeichen virtueller Lehr- und Lernszenarien*. Bonn: DAAD.

Teichler, U. (2007). *Die Internationalisierung der Hochschulen: Neue Herausforderungen und Strategien*: Campus Verlag.

Thompson, A. A., & Strickland, A. J. (1999). *Strategic management: Concepts and cases* (11th ed.). Boston, MA: Irwin McGraw Hill.

Appendix C: Higher Education Acts – Qualitative Content Analysis

List of Codes				Memo	#
Code system					101
	Options				
		Award of international degrees possible		The law allows universities to award other academic degrees than Bachelor or Master under the condition of approval of the ministry	1
		Obligatory stay abroad possible		Universities are entitled to require that part of the programmes are studied abroad if considered useful	1
		Double-degree programmes		Universities are entitled to develop joint degree programmes	2
	Objectives of student body				1
		Include interest of international students			1
		Enhance integration of international students		The student body is mandated to facilitate integration of international students	8
		Enhance international student relations		Student body is mandated by law to engage in maintaining international student relations	9
	Actions			Concrete means of internationalization nominated in law	
		International programmes		Universities are entitled to offer degree programmes in foreign languages; they are allowed to cooperate with foreign universities	1
		Foundation programmes		Foundation programmes nominated as task of universities	4
			Foundation programme generally under the supervision of ministry	The Higher Education Act assigns the right to offer foundation programmes to certain state-run universities	2
			Foundation programme under reservation of approval	Publicly recognised universities can be allowed to run foundation programmes	2
			Foundation programme flexible	Universities can offer, exam can be taken without attendance of foundation programme, private providers are allowed	1
			Foundation programme free of charge	The foundation programme must be provided and offered free of charge	1
		Exchange		Universities engage in exchange	12

List of Codes		Memo	#
	Vacant professorship to be announced internationally	The Higher Education Act explicitly demands that vacant professorship must be announced internationally	9
Overall objectives of university		Overall objectives of the universities, explicitly stated and related to internationalization	
	International, joint research	Universities are to cooperate internationally in research projects	1
	Universities facilitate international qualification	Universities have the task to facilitate students' earning international qualifications	1
	Internationalization as part of target agreements	Higher Education Act states explicitly that the development of the internationalization is to be part of target agreements	5
	Evaluation of internationalization on a regular basis	Higher Education Act states explicitly that the development of the internationalization is to be evaluated by the ministry	1
	Facilitation of integration of international students	Universities are to support the intergration of international students	4
	International reference	Degree programmes are to include adequate international elements	3
	International benchmarks	Study and exam achievements are to be evaluated according to international standards	1
	Enhance student mobility	Universities are to enhance students´ international mobility	1
	Reflect needs of international students	Universities are to take needs of international students into account by adequate measures	13
	Encourage international cooperation	Universities are mandated to engage in international cooperation	16

Appendix D: List of Codes – Qualitative Content Analysis

List of Codes			Memo	#
Code system				70
	Purpose		Underlying values of internationalization, deeply rooted beliefs which drive internationalization; general attitude towards internationalization	0
	Integration of people and framework		Reflection of political framework, contribute to the integration of people from different origin	1
	No purpose beyond science		Science is a means in itself and encompasses internationalization in order to enhance its quality	2
	Internationalization self-evident		Internationalization is self-evident in science – it is not in question and is thus executed	2
	Foundation mission		Internationalization has been inserted into the university already at the time of its foundation	1
	General attitude		Culture of organization: Internationalization is facilitated by a general consensus on its priority and particular value	2
	Effectiveness		Alignment of resources according to strategic priorities	0
	Reputation as driver of internationalization		International reputation is considered a key driver of internationalization and the development of it is central to the university leader	1
	Strengthen existing profiles		The university leader focuses the internationalization efforts on leveraging on existing profiles, focuses and connections.	1
	Particular leadership in Higher Ed		The rector emphasizes the specifics of leadership of institutions in higher education	5
		Authority to set guidelines	The rector does not consider him or herself to be at the top of the hierarchy – he/she has the final responsibility and the authority to set guidelines	2
		Alignment of partnerships	The leader invests in aligning partnerships according to strategic priorities	4
		Leaders as catalysts of innovation	The leader perceives him or herself to be responsible to introduce innovations, win faculty and to catalyze the process of including innovations into existing programmes	4
	Leader as strategist		The leader assesses the necessity to act as forward-looking, proactive strategist	1

List of Codes			**Memo**	**#**
	Internationalization not directly manageable		The leader acknowledges that internationalization of universities is not directly manageable by a central authority	2
Entrepreneurial spirit			Aspects, how entrepreneurship and the idea of the entrepreneurial university are encouraged and employed for the internationalization, attitude towards technological change	0
	Technology		Definition and description of the role of technology; statements on the university's positioning with regard to technological change affecting higher education	0
		Reservations against technological change	Reasons why technological change is decelerated; strength of the existing model of German universities; problems and downsides of online-delivered courses	0
	Attitude towards technology		Encompasses attitudes, opinions and policies with regard to technology- driven innovations in higher education	0
		Introduce tested, reliable technology	If the university generally does not engage in untested, new technologies – it applies a 'me too' strategy by implementing technologies that have proven their reliability and adequacy in other universities	2
		Case by case, decided by professor	The implementation of new technologies is decided by the individual professor who can call for support from specialized units	3
		LImited impact of technology	The rector focuses on the advantages of presence-learning, thus the impact of technology in the near future is considered low	4
		Pro-active engagement in technologies	The leader considers technology and its management as central to the university's development and thus invests proactively and strategically in new technologies	1
	Manage demographic challenge of the university		The university employees internationalization of students and researchers in order to compensate the reduced number of available students in Germany	1
	Seize opportunities from environment		The university leverages on strengths and opportunities provided by its direct environment, such as existing links to specific countries or historical places in the direct environment	3
	University as risk-taker		The university deliberately engages in risk-bearing ventures in order to innovate itself	2
	Hiring policy for professors		The leader employs hiring policy strategically to support the internationalization process	0
		International exposure as conditio sine qua non	The leader endorses exclusively appointments of new professors who are internationally exposed in order to enhance the international competence of the university	2

List of Codes			Memo	#
		Strictly achievement-oriented	Criteria for new appointments of professors are exclusively achievement-oriented	4
	International competition		Attitudes and policies towards domestic and international competition	0
		Deliberately influencing international rankings	The university has analyzed the fundamental functionality of international rankings and deliberately makes use of them	1
		Qua property excluded from rankings#	Due to unchangeable properties, such as age or size, this university is de facto excluded from the participation in international rankings	1
		Critically interested in international rankings	The university uses the feedback provided by rankings – but does not make performance in rankings a strategic priority, the institution remains committed to its content-driven approach	2
		Relevance of markets and competition acknowledged	The leader acknowledges the significant relevance of markets and market-driven instruments, such as the Excellence Initiative, league tables and the feedback from recruitment markets	4
	Incentives for scientists		The university offers specific incentives for scientists to comply with its strategy	1
Responsibility			Respecting legitimate expectations of others guiding principles governing actions, structures, and communication	0
	Encourage startups by graduates		The leader aims at encouraging university graduates to engage entrepreneurially in the form of startups to strengthen the region economically and to return prosperity to the local society	1
	Educating democratic, global citizens		The university aims at delivering education beyond subjects-related content, such as an understanding of and appreciation of democracy and democratically driven behavior, mutual understanding and peaceful cooperation between nations	5
	Deliver qualified employees for German economy		The leader considers it a responsibility of the university to educate future employees of the local economy	1
	Contribute to manage demographic challenge in Germany		The university aims at contributing to the solution of the demographic challenge in Germany by recruiting international students	1
	Solving global problems		The university aims at contributing to the solution of global problems, such as global warming, international conflicts or the threat to democracy	3

References

Aghion, P., Dewatripont, M., Hoxby, C., Mas-Colell, A., & Sapir, A. (2010). The governance and performance of universities: Evidence from Europe and the US. *Economic Policy*, *25*(61), 7-59.

Albach, H. (1999). *Informationelle Revolution – versagen die Universitäten erneut?* Lecture from 1999, May 5. Siegen: Siegener Universitäts-Reden.

Alichniewicz, J., & Geis, W. (2013). Zuwanderung über die Hochschule. *IW-Trends – Vierteljahresschrift zur empirischen Wirtschaftsforschung*, *40*(4), 3-17.

Andersen, O. (1993). On the internationalization process of firms: A critical analysis. *Journal of International Business Studies*, *24*(2), 209-231.

Anderson, C. (2008, June 23). The end of theory: The data deluge makes the scientific method obsolete. *Wired Magazine*, *16*(7). Retrieved from https://www.wired.com/2008/06/pb-theory/

Andrews, R., Boyne, G. A., & Walker, R. M. (2006). Strategy content and organizational performance: An empirical analysis. *Public Administration Review*, *66*(1), 52-63.

Ansoff, H. I. (1987a). Strategic management of technology. *Journal of Business Strategy*, *7*(3), 28-39.

Ansoff, H. I. (1987b). *Corporate strategy* (Rev. ed.). London: Penguin Books.

Altbach, P. G. (2007). *Tradition and transition: The international imperative in higher education* (Vol. 7). Rotterdam: Sense Publishers.

Altbach, P. G. (2010, November 11). The state of the rankings: Efforts to evaluate universities from around the world may be flawed, but they aren't going away so they need to be understood. *Inside Higher Ed*. Retrieved from https://www.insidehighered.com/views/2010/11/11/state-rankings

Altbach, P. G. (2013). Rankings season is here. In P. G. Altbach (Ed.) *The International Imperative in Higher Education* (pp. 81-88). Rotterdam: Sense Publishers.

Altbach, P. G., & Teichler, U. (2001). Internationalization and exchanges in a globalized university. *Journal of Studies in International Education*, *5*(1), 5-25.

Alvesson, M. and Ashcraft, K. (2012). Interviews. In G. Symon & C. Cassell (Eds.), *Qualitative organizational research: Core methods and current challenges* (pp. 239-257). London: Sage Publications Ltd.

Aulbach, M., Herfurth, L., Koch-Gimpel, W., & Neuhaus, K. (2017). *Foundation programmes in Germany* [*Studienkollegs in Deutschland*]. Retrieved May 17, 2017 from http://www.studienkollegs.de/home.html

U. Bremer, *Internationalization Strategies of German Universities*,
Schriftenreihe der HHL Leipzig Graduate School of Management,
https://doi.org/10.1007/978-3-658-22133-1

Axelsson, B., & Easton, G. (1992). *Industrial networks: A new view of reality*. London: Routledge Publishers.

Ayoubi, R. M. (2013). A model of re-evaluating university partnerships: A UK example. *European Journal of Higher Education*, *3*(2), 220-234.

Ayoubi, R. M., & Massoud, H. K. (2007). The strategy of internationalization in universities: A quantitative evaluation of the intent and implementation in UK universities. *International Journal of Educational Management*, *21*(4), 329-349.

Baden-Württemberg State Government [Landesregierung Baden-Württemberg]. (2017). *Fees for international students* [*Gebühren für internationale Studenten*]. Retrieved from Baden-Württemberg State Government [Landesregierung Baden-Württemberg] Web site: https://mwk.baden-wuerttemberg.de/de/hochschulen-studium/studienfinanzierung/gebuehren-fuer-internationale-studierende-und-zweitstudium/

Baden-Württemberg State Ministry of Science, Research and Art [Ministerium für Wissenschaft, Forschung und Kunst des Landes Baden-Württemberg]. (2017). *State Parliament passes law on fees for international students* [*Landtag verabschiedet Gesetz zu Gebühren für Internationale Studierende und Zweitstudium*]. Retrieved from Baden-Württemberg State Government [Landesregierung Baden-Württemberg] Web site: https://mwk.baden-wuerttemberg.de/de/hochschulen-studium/studienfinanzierung/gebuehren-fuer-internationale-studierende-und-zweitstudium/

Baden-Württemberg State Parliament [Landtag Baden-Württemberg], (2015, January). *Higher Education Act Baden-Württemberg* [*Gesetz über die Hochschulen in Baden-Württemberg*]. (Revised 2017, May 9). Retrieved from the State Parliament Baden-Württemberg [Landtag Baden-Württemberg] Web site: http://www.landesrecht-bw.de

Baetz, B., & Kenneth, C. (1998). The relationship between mission statements and firm performance: An exploratory study. *Journal of Management Studies*, *35*(6), 823-853.

Barker, A. (2015, October 19). Are Chinese students driving educational imperialism? [Essay] *Inside Higher Ed*. Retrieved from https://www.insidehighered.com/views/2015/10/19/professors-experience-unprepared-chinese-students-essay

Barnett, B., & Jacobson, S. L. (2010). Higher education partnerships for studying and improving leadership preparation and development around the world. In N. Foskett (Ed.), *Global markets, national challenges, local strategies: The strategic challenge of internationalization*. London: Continuum Publishers.

Bart, C. K. (1997). Sex, lies, and mission statements. *Business Horizons*, *40*(6), 9-18.

Bartkus, B., Glassman, M., & McAfee, R. B. (2000). Mission statements: Are they smoke and mirrors? *Business Horizons*, *43*(6), 23-28.

Baskin, K. (1998). *Corporate DNA: Organizational learning, corporate co-evolution: Learning from life*. (Vol. 2). New York, NY: Routledge Publishers.

Bass, B. M., & Bass, R. (2008). *The Bass handbook of leadership: Theory, research, and managerial applications* (4th ed., Free Press hardcover ed.). New York, NY; London: Free Press.

Bates, A. W. (T.) (1999). *Managing technological change: Strategies for college and university leaders* (1st ed.). (The Jossey-Bass Higher and Adult Education Series). San Francisco, CA: Jossey-Bass Publishers.

Baty, P. (2010). *THE unveils broad, rigorous new rankings methodology: Tally of key indicators jumps from six to 13 in 2010 world league tables*. Retrieved from Times Higher Education Web site: https://www.timeshighereducation.com/news/the-unveils-broad-rigorous-new-rankings-methodology/411907.article?sectioncode=26&storycode=411907&c=1

Bavarian State Ministry of Education and Culture, Science and Art [Bayerisches Staatsministerium für Bildung und Kultus, Wissenschaft und Kunst]. (2017). *International*. Retrieved from Bavarian State Ministry of Education and Culture, Science and Art [Bayerisches Staatsministerium für Bildung und Kultus, Wissenschaft und Kunst] Web site: https://www.km.bayern.de/studenten/international.html

Becker, R. F. J. (2009). *International branch campuses: Markets and strategies*. London: The Observatory on Borderless Higher Education.

Becker, S. (2013, January 20). Mächtige Uni-Präsidenten: Das süße Leben der Campus-Könige. *Spiegel Online*, (*30*). Retrieved from http://www.*spiegel*.de/unispiegel/jobundberuf/uni-praesidenten-regieren-ihre-hochschulen

Bedenlier, S., & Zawacki-Richter, O. (2015). Internationalization of higher education and the impacts on academic faculty members. *Research in Comparative and International Education*, *10*(2), 185-201.

Beerkens, E. (2002). International inter-organisational arrangements in higher education: Towards a typology. *Tertiary Education & Management*, *8*(4), 297-314.

Beerkens, E., & Van der Wende, M. (2006). The paradox in international cooperation: Institutionally embedded universities in a global environment. *Higher Education*. Advance online publication. Dordrecht: Kluwer Academic Publishers, Springer Science and Business Media. https://doi.org/10.1007/s10734-005-7695-z

Belkin, D., & Jordan, M. (2016, March 17). Heavy recruitment of Chinese students sows discord on U.S. campuses: Colleges need international students in part for the tuition revenue, but language and cultural barriers make assimilation a struggle. *The Wall Street Journal*. Retrieved from https://www.wsj.com/articles/heavy-recruitment-of-chinese-students-sows-discord-on-u-s-campuses-1458224413

Belzer, V. (Ed.). (1995). *Sinn in Organisationen? Oder: Warum haben moderne Organisationen Leitbilder?* Munich, Mering: Rainer Hampp Publisher.

Benkler, Y. (2006). *The wealth of networks: How social production transforms markets and freedom*. New Haven, CT; London: Yale University Press.

Berlin State Government [Landesregierung Berlin], (2011, July), *Higher Education Act* [*Hochschulgesetz*]. (Revised 2016, May 9). Retrieved 2017, May 20 from the Berlin State Government [Landesregierung Berlin] Web site: http://gesetze.berlin.de

Berthold, C., Hener, Y., & Von Stuckrad, T. (2008). Demographische Entwicklung und Hochschulen – Pilotprojekt Sachsen. *Bestandsaufnahme und politische Empfehlungen*. (Working Paper No. 104). Gütersloh: Centre for Higher Education [Centrum für Hochschulentwicklung] (CHE).

Berthold, C., & Leichsenring, H. (2009). *Demographische Entwicklung und Hochschulen-Pilotprojekt Thüringen*. Gütersloh: Centre for Higher Education [Centrum für Hochschulentwicklung] (CHE).

Bessey, D. (2012). International student migration to Germany. *Empirical Economics*, *42*(1), 345-361.

Binsardi, A., & Ekwulugo, F. (2003). International marketing of British education: Research on the students' perception and the UK market penetration. *Marketing Intelligence & Planning*, *21*(5), 318-327.

Birnbaum, R. (1992). *How colleges work: Patterns of organization, management, and leadership in higher education*. San Francisco, CA: Jossey-Bass Publishers.

Blankenburg, D. (2013). Foreign market entry as a network process. In K. Möller & D. Wilson (Eds.), *Business marketing: An interaction and network perspective* (pp. 375-394). Springer Science & Business Media.

Bleicher, K. (1994). *Leitbilder: Orientierungsrahmen für eine integrative Management-philosophie* (2nd ed.). Institute for Business Administration, University of St. Gallen for Economic, Legal and Social Sciences. Stuttgart, Zürich: Schäffer-Poeschel; Verlag Neue Zürcher Zeitung.

Blossfeld, H.-P. (2010). *Bildungsautonomie: Zwischen Regulierung und Eigenverantwortung: Jahresgutachten 2010*. Wiesbaden: Waxmann Publishing. Retrieved from http://www.aktionsrat-bildung.de/fileadmin/Dokumente/Jahresgutachten_2010.pdf

Blossfeld, H.-P., Bos, W., Daniel, H.-D., Hannover, B., Lenzen, D., Prenzel, M., & Wössmann, L. (2011). *Bildungsreform 2000 – 2010 – 2020: Jahresgutachten 2011*. Munich: Action Committee Education [Aktionsrat Bildung]. Retrieved from http://www.aktionsrat-bildung.de/fileadmin/Bilder/Zukunft_D_22.03.2011/5._Jahresgutachten_2011.pdf

Bogumil, J. (2013). *Modernisierung der Universitäten: Umsetzungsstand und Wirkungen neuer Steuerungsinstrumente. Modernisierung des öffentlichen Sektors. Sonderband* (Vol. 41). Berlin: Edition Sigma.

Bolten, J., Luckscheiter, R., Seyfarth, F., Thrilosen, A., & Schifferings, M. (2013). Neue Wege für das internationale Hochschulmarketing? MOOCs und die virtuelle Hochschulbildung. In A. Borgwardt (Ed.), *Internationales Hochschulmarketing. Chancen – Herausforderungen – Impulse. 6. GATE-Germany Marketing Congress* (pp. 42–47). Bielefeld: Bertelsmann Publishers.

Bonaccorsi, A. (1992). On the relationship between firm size and export intensity. *Journal of International Business Studies*, *23*(4), 605-635.

Bourgeois, L. J. (1984). Strategic management and determinism. *Academy of Management Review*, *9*(4), 586-596.

Brandenburg State Ministry of Science, Research and Culture [Ministerium für Wissenschaft, Forschung und Kultur, Land Brandenburg]. (2013). *Brandenburg State University Development Plan to 2025*. Retrieved from Brandenburg State Ministry of Science, Research and Culture [Ministerium für Wissenschaft, Forschung und Kultur, Land Brandenburg] Web site: http://www.mwfk.brandenburg.de/sixcms/detail.php/604439

Brandenburg State Parliament [Brandenburgischer Landtag], (2014, April). *Brandenburgian Higher Education Act* [*Brandenburgisches Hochschulgesetz*]. (Revised 2015, July 1). Retrieved 2017, May 20 from the Brandenburg State Parliament [Brandenburgischer Landtag] Web site: http://bravors.brandenburg.de/gesetze/bbghg_2016

Brandenburg, U., & Federkeil, G. (2007). *Wie misst man Internationalität und Internationalisierung von Hochschulen? Indikatoren-und Kennzahlenbildung.* (Working Paper No. 83, January). Gütersloh: Centre for Higher Education [Centrum für Hochschulentwicklung] (CHE).

Braunerhjelm, P. (2008). Specialization of regions and universities: The new versus the old. *Industry and Innovation*, *15*(3), 253-275.

Brinckmann, H. (1998). *Die neue Freiheit der Universität: Operative Autonomie für Lehre und Forschung an Hochschulen. Modernisierung des öffentlichen Sektors. Sonderband* (Vol. 10). Berlin: Edition Sigma.

British Council. (2012). *The shape of things to come: Higher education global trends and emerging opportunities to 2020 (Going Global 2012)*. London: British Council. Retrieved from

https://www.britishcouncil.org/sites/default/files/the_shape_of_things_to_come_-_higher_education_global_trends_and_emerging_opportunities_to_2020.pdf
Brodnig, I. (2017). Wie sich Lügen im Netz verbreiten: Populisten missbrauchen das Internet als Plattform für Propaganda. Das bedroht die Demokratie – doch Nutzer können sich dagegen wehren. *Süddeutsche Zeitung*. Retrieved from http://www.sueddeutsche.de/digital/ingrid-brodnig-wie-sich-luegen-im-netz-verbreiten-1.3550735Brodnig
Brown, R. (2011). *Higher education and the market*. London; New York, NY: Routledge Publishers.
Bryman, A. (2016). *Social research methods* (5th ed.). Oxford; New York, NY: Oxford University Press.
Bryman, A., & Bell, E. (2016). *Business research methods* (4th ed.). Oxford: Oxford University Press.
Bryson, J. M. (2011). *Strategic planning for public and nonprofit organizations: A guide to strengthening and sustaining organizational achievement* (4th Rev. ed.). *Bryson on strategic planning* (Vol. 1). Hoboken, NJ: John Wiley & Sons.
Buckley, P. J., & Casson, M. (1996). An economic model of international joint venture strategy. *Journal of International Business Studies*, *27*(5), 849-876.
Burkhardt, S. (2011). *Science cosmopolitan 2011: Facts and figures on the international nature of studies and research in Germany* [*Wissenschaft weltoffen 2011: Daten und Fakten zur Internationalität von Studium und Forschung in Deutschland*] (1st ed.). Bielefeld: Bertelsmann Publishers.
Burkhardt, S. (2013). *Science cosmopolitan 2012: Facts and figures on the international nature of studies and research in Germany* [*Wissenschaft weltoffen 2012: Daten und Fakten zur Internationalität von Studium und Forschung in Deutschland*]. Bielefeld: Bertelsmann Publishers.
Burkhardt, S. (2015). *Verbleib ausländischer Studierender und Absolventen in Deutschland*. Bonn: DAAD (Deutscher Akademischer Austauschdienst) German Academic Exchange Service.
Burkhardt, S. (2016). *Science cosmopolitan 2016: Facts and figures on the international nature of studies and research in Germany. Focus: International mobility of academics and researchers* [*Wissenschaft weltoffen 2016: Daten und Fakten zur Internationalität von Studium und Forschung in Deutschland. Fokus: Internationale Mobilität von Wissenschaftlern*]. Bielefeld: Bertelsmann Publishers.
Burton-Jones, A. (1999). *Knowledge capitalism: Business, work, and learning in the new economy*. Oxford; New York, NY: Oxford University Press.
Cadle, J., Paul, D., & Turner, P. (2014). *Business analysis techniques: 99 essential tools for success* (2nd ed.). Swindon, UK: BCS Learning & Development Ltd.
Calof, J. L. (1994). The relationship between firm size and export behavior revisited. *Journal of International Business Studies*, *25*(2), 367-387.
Cardona, P., & Rey, C. (2008). *Management by missions*. New York, NY: Palgrave Macmillan.
Casper, G. (2014). Für die Freiheit und Integrität von Forschung und Lehre: Dinner-speech. In A. Pinkwart (Ed.), *HHL Forum: Führung neu denken: Markt und Moral. HHL Forum 2014* (pp. 9-11). Leipzig: Geschäftsführung der HHL gGmbH.
Chan, W. W. Y. (2004). International cooperation in higher education: Theory and practice. *Journal of Studies in International Education*, *8*(1), 32-55.
Chandler, A. D. (1972). *Strategy and structure: Chapters in the history of the American industrial enterprise*. Cambridge, MA; London: MIT Press.

Chen, L.-H. (2008). Internationalization or international marketing? Two frameworks for understanding international students' choice of Canadian universities. *Journal of Marketing for Higher Education*, *18*(1), 1-33.
Child, J. (1997). Strategic choice in the analysis of action, structure, organizations and environment: Retrospect and prospect. *Organization Studies*, *18*(1), 43-76.
Childress, L. K. (2010). *The twenty-first century university: Developing faculty engagement in internationalization*. New York, NY: Peter Lang Publishers.
Christensen, C. M. (2003). Disruption in education. *Educause Review*, *38*, 19-44.
Christensen, C. M. (2016). *The innovator's dilemma: When new technologies cause great firms to fail*. (The Management of Innovation and Change Series). Boston, MA: Harvard Business Review Press.
Christensen, C. M., & Eyring, H. J. (2011). *The innovative university: Changing the DNA of higher education from the inside out* (1st ed.). (The Jossey-Bass Higher and Adult Education Series). San Francisco, CA: Jossey-Bass Publishers.
Christensen, C. M., & Raynor, M. E. (2003). *The innovators solution: Creating and sustaining successful growth*. Boston, MA: Harvard Business School; London: McGraw-Hill.
Clark, B. R. (1986). *The higher education system: Academic organization in cross-national perspective*. Berkeley, CA: University of California Press.
Clark, B. R. (1998). *Creating entrepreneurial universities: Organizational pathways of transformation* (Issues in Higher Education). New York, NY; Oxford: Pergamon Press.
Cohen, M. D., & March, J. G. (1974). *Leadership and Ambiguity: The American College President*. Berkeley, CA: Carnegie Foundation.
Collins, J., & Hansen, M. T. (2011). *Great by choice: Uncertainty, chaos, and luck -- Why some thrive despite them all* (1st ed.). New York, NY: HarperCollins Business.
Cook, M. (2017). The 50 Most Popular MOOCs of All Time. *Online Course Report*. Retrieved from http://www.onlinecoursereport.com/the-50-most-popular-moocs-of-all-time/
Cooper, D. R., & Schindler, P. S. (2003). *Business research methods* (8th ed.). Boston: McGraw-Hill Irwin.
Council of Experts on the Assessment of Economic Development [Sachverständigenrat zur Begutachtung der wirtschaftlichern Entwicklung] (SVR). (2011). *Challenges of demographic shift. Expertise on behalf of the Federal Government* [*Herausforderungen des demografischen Wandels. Expertise im Auftrag der Bundesregierung*]. Wiesbaden: Statistisches Bundesamt. Retrieved from SVR Web site: https://www.sachverstaendigenrat-wirtschaft.de/fileadmin/dateiablage/Expertisen/2011/expertise_2011-demografischer-wandel.pdf
Council of Experts of German Foundations on Integration and Migration [Sachverständigenrat deutscher Stiftungen für Integration und Migration], (2015). *Access door universities: International students as specialist staff of tomorrow* [*Zugangstor Hochschule: Internationale Studierende als Fachkräfte von morgen*]. Berlin: Council of Experts of German Foundations on Integration and Migration [Sachverständigenrat deutscher Stiftungen für Integration und Migration].
Coursera. (2017). *Technische Universität München (TUM)*. Retrieved from https://www.coursera.org/tum
Covin, J. G., & Miles, M. P. (1999). Corporate entrepreneurship and the pursuit of competitive advantage. *Entrepreneurship: Theory and practice, 23*(3), 47.
Cravens, D. W., Shipp, S. H., & Cravens, K. S. (1994). Reforming the traditional organization: The mandate for developing networks. *Business Horizons*, *37*(4), 19-28.

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches* (International Student ed., 4th ed.). Thousand Oaks, CA: Sage Publications, Inc.
DAAD (Deutscher Akademischer Austauschdienst) German Academic Exchange Service. (2014). *Akademische Mobilität und Fachkräfte-Migration: Die Position des DAAD*. Bonn: Deutscher Akademischer Austauschdienst (DAAD) [German Academic Exchange Service]. Retrieved from www.daad.de
DAAD (Deutscher Akademischer Austauschdienst) German Academic Exchange Service. (2017a). *International programmes in Germany 2017: Information on study and research in Germany*. Retrieved from https://www.daad.de/deutschland/studienangebote/international-programs/en/?p=l&q=&fos=0&lang=2&fee=0&sortBy=1&page=1&display=list
DAAD (Deutscher Akademischer Austauschdienst) German Academic Exchange Service. (2017b). *Motto – DAAD – Deutscher Akademischer Austauschdienst*. Bonn: Deutscher Akademischer Austauschdienst (DAAD) [German Academic Exchange Service]. Retrieved from www.daad.de
Darby, M. R., & Karni, E. (1973). Free competition and the optimal amount of fraud. *The Journal of Law and Economics*, *16*(1), 67-88.
Dauth, T. (2012). *Die Internationalität von Top-Managern: Aktienkursreaktionen auf die Benennung internationaler Vorstände und Aufsichtsräte* (MIR ed.). Wiesbaden: Springer Gabler.
Davies, J. L. (1992). Developing a strategy for internationalization in universities: Towards a conceptual framework. In C. B. Klasek (Ed.), *Bridges to the future: Strategies for internationalizing higher education* (pp. 177-190). Carbondale, IL: Association of International Education Administrators.
Davies, J. L. (1995). University strategies for internationalization in different institutional and cultural settings. In P. Blok (Ed.), *Policy and policy implementation in internationalization of higher education* (EAIE Occasional Paper No. 8), 3-18.
Davis, J., Ruhe, J. A., Lee, M., & Rajadhyaksha, U. (2007). Mission possible: Do school mission statements work? *Journal of Business Ethics*, *70*(1), 99-110.
Denzin, N. K. (1973). *The research act: A theoretical introduction to sociological methods*. New London, Brunswick, NJ: Transaction Publishers.
DER SPIEGEL. (2016, March 29). Zusätzlich zur Exzellenzinitiative: Wanka will auch kleine Unis und FHs fördern. *SPIEGEL ONLINE, Leben und Lernen*. Retrieved from http://www.spiegel.de/lebenundlernen/uni/exzellenzinitiative-wanka-will-neue-foerderung-kleiner-unis-a-1084428.html
Desmidt, S., Prinzie, A., & Decramer, A. (2011). Looking for the value of mission statements: A meta-analysis of 20 years of research. *Management Decision*, *49*(3), 468-483.
Dess, G. G., Lumpkin, G. T., Eisner, A. B., & McNamara, G. (2014) *Strategic management: Creating competitive advantages* (7th ed., Global ed.). New York, NY: McGraw Hill.
De Wit, H. (2012). Student mobility between Europe and the rest of the world: Trends, issues and challenges. In A. Curaj, P. Scott, L. Vlasceanu, & L. Wilson (Eds.), *European higher education at the crossroads* (pp. 431-439). Dordrecht: Springer Netherlands.
De Wit, K. (2010). The networked university: The structure, culture, and policy of universities in a changing environment. *Tertiary Education and Management*, *16*(1), 1-14.
Dill, D., & Soo, M. (2005). Academic quality, league tables and public policy: A cross-national analysis of university ranking systems. *Higher Education*. (49), 495-533.
Dohmen, D., & Krempkow, R. (2014). *Die Entwicklung der Hochschulfinanzierung-von 2000 bis 2025*. Berlin: Konrad-Adenauer-Stiftung.

Donors' Association [Stifterverband]. (2002). *Quality through competition and autonomy* [*Qualität durch Wettbewerb und Autonomie*]. Essen. Retrieved from Donors' Association [Stifterverband] Web site: http://www.stifterverband.de/pdf/positionen_august_2002. pdf.

Donors' Association [Stifterverband]. (2013). *University ranking and start-up support* [*Hochschulranking der Gründungsförderung*]. Essen. Retrieved from Donors' Association [Stifterverband] Web site: http://www.stifterverband.com/gruendungsradar/2013/hochschulbefragung/hochschulranking/index.html

Döring, N., & Bortz, J. (2016). *Forschungsmethoden und Evaluation in den Sozial- und Humanwissenschaften* (5th Rev. ed.). *Springer-Lehrbuch*. Berlin, Heidelberg: Springer Publishing House.

Doz, Y. L., & Hamel, G. (1998). *Alliance advantage: The art of creating value through partnering*. Boston, MA: Harvard Business School Press.

Drucker, P. F. (1963). Managing for business effectiveness. *Harvard Business Review 41*(3), 53-60.

Drucker, P. F. (1997, October 3). (Interview by Lenzner, R., & Johnson, S. S.). Seeing things as they really are. *Forbes Media*. Retrieved from https://www.forbes.com/forbes/1997/0310/5905122a.html

Drucker, P. F. (2005). *Managing the non-profit organization: Practices and principles* (1st Collins Business ed.). New York, NY: HarperCollins Business.

Drucker, P. F. (2011). *The age of discontinuity: Guidelines to our changing society*. London: Transaction Publishers.

Drucker, P. F., & Maciariello, J. A. (2008). *Management* (Rev. ed.). New York, NY: HarperCollins Publishers. (Original work published 1973)

Dunning, J. H. (1980). Toward an eclectic theory of international production: Some empirical tests. *Journal of International Business Studies*, *11*(1), 9-31.

Edwards, R., & Edwards, J. (2001). Internationalisation of education: A business perspective. *Australian Journal of Education*, *45*(1), 76-89.

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of Management Review*, *14*(1), 57-74.

Enders, J., & Westerheijden, D. F. (2011).The Bologna Process: From the national to the regional to the global, and back. In R. King, S. Marginson & R. Naidoo (Eds.), *Handbook on globalization and higher education* (p. 469). Cheltenham: Edward Elgar Publishing.

Entrepreneurship. (2016). In *BusinessDictionary online*. Retrieved from http://www.businessdictionary.com/definition/entrepreneurship.html

Erhardt, D., & von Kotzebue, A. (2016). Competition unleashed: Horizontal differentiation in German higher education. *Tertiary Education and Management, 22*(4), 333-358.

Erramilli, M. K. (1990). Entry mode choice in service industries. *International Marketing Review*, *7*(5).

Escribá-Esteve, A., Sánchez-Peinado, L., & Sánchez-Peinado, E. (2009). The influence of top management teams in the strategic orientation and performance of small and medium-sized enterprises. *British Journal of Management*, *20*(4), 581-597.

European Commission. (2013). *Fact Sheet on Horizon 2020 budget*. Retrieved from http://ec.europa.eu/research/horizon2020/pdf/press/fact_sheet_on_horizon2020_budget.pdf

European Commission. (2017). *Horizon 2020*. Retrieved from http://ec.europa.eu/research/participants/portal/desktop/en/funding/index.html

European Research Council. (2017). *Guidelines for establishment of research teams*. Retrieved from https://erc.europa.eu/managing-your-project/set-and-develop-your-team

Faschingbauer, M. (2013). *Effectuation: Wie erfolgreiche Unternehmer denken, entscheiden und handeln* (2nd ed.). *Systemisches Management*. Stuttgart: Schäffer-Poeschel.

Federal Agency for Migration and Refugees [Bundesagentur für Migration und Flüchtlinge] (BAMF). (2012). *Immigration of international students from third countries: Study of the German contact point of the European Network for Migration (EMN)* [*Zuwanderung von inter nationalen Studierenden aus Drittstaaten: Studie der deutschen nationalen Kontaktstelle für das Europäische Migrationsnetzwerk (EMN)*]. Nuremberg: Federal Agency for Migration and Refugees (BAMF). (Working Paper No. 47)

Federal Agency for Migration and Refugees [Bundesagentur für Migration und Flüchtlinge] (BAMF). (2014). *Employment of foreign graduates of German universities: Findings from a study by the Federal Agency for Migration and Refugees* [*Beschäftigung ausländischer Absolventen deutscher Hochschulen: Ergebnisse der BAMF*]. (Graduate Study 2013). Nuremberg: Federal Agency for Migration and Refugees (BAMF). (Research Report No. 23)

Federal Agency for Migration and Refugees [Bundesagentur für Migration und Flüchtlinge] (BAMF). (2015). *Stay-back ratio of international students in comparison by target countries* [*Bleibequoten internationaler Studenten im Zielstaatenvergleich*]. Nuremberg: Federal Agency for Migration and Refugees (BAMF).

Federal Agency for Migration and Refugees [Bundesamt für Migration und Flüchtinge] (BAMF). (2016). *Migration Report 2015* [*Migrationsbericht 2015*] (Section F1: Migration and Integration Research, Focus: Worldwide and irregular migration, Islam, Demography, Research transfer, Scientific supervision of the doctoral programme Section 119 – Statistics [Weltweite und irreguläre Migration, Islam, Demografie, Forschungstransfer]). Nuremberg: Federal Agency for Migration and Refugees (BAMF). (Migration Report 2015)

Federal Agency for Political Education [Bundeszentrale für politische Bildung] (BPB). (2011). *Demographic development and social consequences* [*Bevölkerungsentwicklung: Soziale Auswirkungen*]. Retrieved from BPB Web site: http://www.bpb.de/politik/innenpolitik/demografischer-wandel/75997/soziale-auswirkungen?p=all

Federal Constitutional Court [Bundesverfassungsgericht]. (1972, May 3). *DFR* (BVerfGE 33, 303 – numerus clausus I). Karlsruhe: Federal Constitutional Court.

Federal Employment Agency [Bundesagentur für Arbeit]. (2016). *Good Education – good opportunities: The labour market for university graduates* [*Gute Bildung – gute Chancen: Der Arbeitsmarkt für Akademikerinnen und Akademiker*]. Nuremberg. Retrieved from the Federal Employment Agency [Bundesagentur für Arbeit] Web site: https://statistik.arbeitsagentur.de/Statischer-Content/Arbeitsmarktberichte/Akademiker/generische-Publikationen/Broschuere-Akademiker-2016.pdf

Federal Foreign Office [Auswärtiges Amt]. (2017). *Visa to enter Germany* [*Visa für die Einreise nach Deutschland*]. Retrieved from the Federal Foreign Office [Auswärtiges Amt] Web site: http://www.auswaertiges-amt.de/DE/EinreiseUndAufenthalt/Visabestimmungen_node.html#doc350344bodyText11

Federal Government and State Governments of the Federal Republic of Germany [Bundesregierung und Landesregierungen der Bundesrepublik Deutschland]. (2014, January 9). *Administrative arrangements between Federal Government and States: Higher Education Pact II 2020,* § 1-2 [*Verwaltungsvereinbarung zwischen Bund und Ländern über den Hochschulpakt II 2020,* § 1-2]. Retrieved from the Federal Gazette Web site: www.bundesanzeiger.de

Federal Government and State Governments of the Federal Republic of Germany [Bundesregierung und Landesregierungen der Bundesrepublik Deutschland]. (2017). *Preamble: Administrative Agreement between Federal Government and States according to Article 91b Constitution on the prolongation of the Excellence Initative of Federal Government and States to foster science and research and art in German universities* [*Preamble: Verwaltungsvereinbarung zwischen Bund und Ländern gemäß Artikel 91 b Abs. 1 Nr. 2 des Grundgesetzes über die Fortsetzung der Exzellenzinitiative des Bundes und der Länder zur Förderung von Wissenschaft und Forschung an deutschen Hochschulen*]. Bonn. *Retrieved from http://www.gwk-bonn.de/fileadmin/Papers/Exzellenzvereinbarung-II-2009. pdf*

Federal Government and State Governments of the Federal Republic of Germany [Bundesregierung und Landesregierungen der Bundesrepublik Deutschland]. (2017, February 21). *Administrative arrangements between Federal Government and States (Higher Education Pact II 2020)* [*Verwaltungsvereinbarung zwischen Bund und Ländern über den Hochschulpakt II 2020*]. Retrieved from the Federal Ministry of Education and Research (BMBF) Web site: https://www.bmbf.de/de/hochschulpakt-2020-506.html

Federal Government of Germany [Bundesregierung]. (2012a). *Fourth Report on implementation of Bologna Process in Germany* [*Vierter Bericht über die Umsetzung des Bologna-Prozesses in Deutschland*]. Berlin. Retrieved from the Federal Ministry of Education and Research (BMBF) Web site: https://www.bmbf.de/files/Bericht_der_Bundesregierung_zur_Umsetzung_des_Bologna-Prozesses_2012-2015.pdf

Federal Government of Germany [Bundesregierung]. (2012b). *Shape globalization – Enhance partnerships – Share responsibility* [*Globalisierung gestalten – Partnerschaften ausbauen – Verantwortung teilen*]. Berlin. Retrieved from the Federal Foreign Office Web site: https://www.auswaertiges-amt.de/cae/servlet/contentblob/608384/publicationFile/190267/Gestaltungsm%C3%A4chtekonzept_dt.pdf

Federal Ministry of Education and Research [Bundesministerium für Bildung und Forschung] (BMBF). (2014). *Cooperation of Federal Government and States* [*Zusammenarbeit von Bund und Ländern inm Wissenschaft und Bildung*]. Retrieved the Federal Ministry of Education and Research (BMBF) Web site: https://www.bmbf.de/de/kooperation-von-bund-und-laendern-in-wissenschaft-und-bildung-77.html

Federal Ministry of Education and Research [Bundesministerium für Bildung und Forschung] (BMBF). (2016). *Internationalization of education, science and research* [*Internationalisierung von Bildung, Wissenschaft und Forschung*]. Retrieved from the BMBF Web site: https://www.bmbf.de/pub/Internationalization_Strategy.pdf

Federal Ministry of Justice and Protection of Consumers [Bundesministeriumustiz für Justiz und für Verbraucherschutz]. (1976). *Higher Education Framework Act* [*Hochschulrahmengesetz*]. (Act No. 1, § 2). (Revised 2007, April 12). Retrieved from the Federal Ministry of Justice and Protection of Consumers Web site: http://www.bmjv.de/DE/Startseite/Startseite_node.html

Federal Ministry of Justice and Protection of Consumers [Bundesministerium für Justiz und Verbraucherschutz], (1976, January 26). *Higher Education Framework Act, § 2* [*Hochschulrahmengesetz, § 2*]. (Revised 2017, May 5). Retrieved from the Bundesministeriums der Justiz und für Verbraucherschutzin Zusammenarbeit mit der juris GmbH – www.juris.de Web site: http://www.gesetze-im-internet.de/bundesrecht/hrg/gesamt.pdf

Federal Ministry of Justice and Protection of Consumers [Bundesministerium für Justiz und Verbraucherschutz]. (2016, October 11). *Law on residence, employment and the integration of foreigners in the Federal Republic of Germany* [*Gesetz über den Aufenthalt,* *die Erwerbstätigkeit und die Integration von Ausländern im Bundesgebiet. (Aufenthaltsgesetz-AufenthG) Verkündet als Artikel I des Gesetzes zur Steuerung und Begrenzung der Zuwanderung und zur Regelung des Aufenthalts und der Integration von Unionsbürgern und Ausländern*]. (Zuwanderungsgesetz, BGBl. 2004 I, Seite 1950). Retrieved from http://www.aufenthaltstitel.de/aufenthaltsg.html

Federal Ministry of Justice and Protection of Consumers [Bundesministerium für Justiz und Verbraucherschutz], (2017, May 24). *Law Against Discrimination.* Retrieved from https://www.gesetze-im-internet.de/agg/index.html

Federal Ministry of the Interior [Bundesministerium des Innern] (BMI). (2016). *Migration Report 2050: Of the Federal Agency for Migration and Refugees on behalf of the Federal Government* [*Migrationsbericht 2050: Des Bundesamtes für Migration und Flüchtlinge im Auftrag der Bundesregierung*]. Nuremberg: Federal Agency for Migration and Refugees (BAMF).

Federkeil, G. (2013). Internationale hochschulrankings – eine kritische bestandsaufnahme. *Beiträge zur Hochschulforschung, 35*(2), 34-48.

Field, A. (2013). *Discovering statistics using IBM SPSS statistics.* London, New Delhi, Los Angeles, CA: Sage Publications Ltd.

Fisher, J. L., Tack, M. W., & Wheeler, K. J. (1988). *The effective college president. American Council on Education* (Macmillan Series on Higher Education). New York, NY: Macmillan Publishers.

Flick, U. (2009). *An introduction to qualitative research* (4th ed.). London: Sage Publications Ltd.

Flick, U. (2011). *Triangulation: Eine Einführung* (3rd Updated ed.). *Qualitative Sozialforschung: Band 12.* Wiesbaden: VS Verlag für Sozialwissenschaften; Springer Fachmedien Wiesbaden GmbH.

Flick, U. (2014). *An introduction to qualitative research* (5th ed.). K. Metzler (Ed.). London: Sage Publications Ltd.

Foskett, N. (2010). Global markets, national challenges, local strategies: The strategic challenge of internationalization. In N. Foskett & F. Maringe (Eds.), *Globalization and internationalization in higher education: Theoretical, strategic and management perspectives* (pp. 35-49). London; New York, NY: Continuum Publishers.

Foskett, N. (2012). Global markets, national challenges, local strategies: The strategic challenge of internationalization. In N. Foskett & F. Maringe (Eds.), *Globalization and internationalization in higher education: Theoretical, strategic and management perspectives* (pp. 35-50). London; New York, NY: Continuum Publishers.

Frankl, V. (2013). *Der Mensch vor der Frage nach dem Sinn: Eine Auswahl aus dem Gesamtwerk* (Foreword by Konrad Lorenz). (25th ed.). Munich: Piper Publishing.

Fraune, C. (2012). Stakeholder von Universitäten: Eine gegenwarts-und zukunftsorientierte Anforderungsanalyse. (KORFU Working Paper No. 4). Siegen-Saarbrücken: Korporatismus als ökonomisches Gestaltungsprojekt für Universitäten (KORFU). Retrieved from http://orga.uni-sb.de/korfu/wp-content/uploads/2015/04/KORFU_Arbeitspapier_04_Stakeholder_von_Universitaeten.pdf

Free City of Bremen State Government [Landesregierung der Freien und Hansestadt Bremen], (2007, May). *Higher Education Act* [*Landeshochschulgesetz*]. (Revised 2015, March 24). Retrieved 2017, May 30 from the Free City of Bremen State Government [Landesregierung der Freien und Hansestadt Bremen] Web site: https://beck-online.beck.de/?vpath=bibdata%2Fges%2FBremHG%2Fcont%2FBremHG%2EAmtinh%2Ehtm

Free Hanseatic City of Bremen Senator of Education and Science [Senatorin für Bildung und Wissenschaft, Freie Hansestadt Bremen]. (2015). *Science Plan 2020 – Priorities of Politics*. Retrieved from www.bildung.bremen.de

Free State of Bavaria State Parliament [Landtages des Freistaates Bayern], (2015, May), *Bavarian Higher Education Act* [*Bayerisches Hochschulgesetz*]. (Revised 2016, December 13). Retrieved 2017, May 17 from the Free State of Bavaria State Parliament [Landtages des Freistaates Bayern] Web site: www.gesetze-bayern.de/Content/Document/BayHSchG

Friedman, T. L. (2013, January 26). Revolution hits the universities. *The New York Times*, pp. 1-5.

Friedman, T. L. (2016). *Thank you for being late: An optimist's guide to thriving in the age of accelerations* (1st ed.). New York, NY: Farrar, Straus and Giroux Publishing.

Fritsch, M. (2015). Demografischer Wandel und Hochschulentwicklung. Ein Gesamtfazit. In M. Fritsch, P. Pasternack, & M. Titze (Eds.), *Schrumpfende Regionen – dynamische Hochschulen. Hochschulstrategien im demografischen Wandel* (pp. 295-301). Wiesbaden: Springer Fachmedien, VS Verlag für Socialwissenschaften.

Fuss, S., & Karbach, U. (2014). *Grundlagen der Transkription: Eine praktische Einführung. UTB Sozialwissenschaften* (Vol. 4185). Opladen, Toronto: Barbara Budrich Publishers.

Galletta, A. (2013). *Mastering the semi-structured interview and beyond: From research design to analysis and publication*. (Qualitative Studies in Psychology Series). New York, NY: New York University Press.

Geis, W. (2012). Der Beitrag der Zuwanderung zur Fachkräftesicherung. *IW Trends*, *2*(2012), 1-16.

Gérard, M. (2012). Who is to pay for mobile students? In Curaj, A., Scott, P., Vlasceanu, L., & Wilson, L. (Eds.) *European Higher Education at the Crossroads* (pp. 727-748). Dordrecht: Springer Netherlands.

German Council of Science and Humanities [Wissenschaftsrat]. (2013). *Recommendations for quality improvements in teaching and learning* [*Empfehlungen zur Qualitätsverbesserung von Lehre und Studium*]. Berlin: German Council of Science and Humanities [Wissenschaftsrat].

German Council of Science and Humanities [Wissenschaftsrat]. (2015). *Empfehlungen zum Verhältnis von Hochschulbildung und Arbeitsmarkt*. Bielefeld: WR. Retrieved from https://www.wissenschaftsrat.de/download/archiv/4925-15.pdf

German Federal Statistical Office [Statistisches Bundesamt (Destatis)]. (2011). *Education, research and culture – students at universities: Data on students and university entrants at German universities Fall Semester 2010/11 (final results)* [*Bildung, Forschung, Kultur – Studierende an Hochschulen: Daten zu Studierenden und Studienanfänger/-innen an deutschen Hochschulen im Wintersemester 2010/2011*]. Retrieved from the Destatis Web site: https://www.destatis.de/DE/Publikationen/Thematisch/BildungForschungKultur/Hochschulen/StudierendeHochschulenEndg.html

German Federal Statistical Office [Statistisches Bundesamt (Destatis)]. (2014). *Passed examinations. State & Society – Education, Research, Culture* [*Bestandene Prüfungen. Staat & Gesellschaft – Bildung, Forschung, Kultur*]. Retrieved from the Destatis Web site: https://www.destatis.de/DE/ZahlenFakten/Indikatoren/LangeReihen/Bildung/lrbil13.html;jsessionid=3BEE97731549484A393CDFD2265A968C.cae4

German Federal Statistical Office [Statistisches Bundesamt (Destatis)]. (2016). *Education, research and culture – students at universities: Data on students and university entrants at German universities Fall Semester 2015/16 (final results)* [*Bildung, Forschung, Kultur – Studierende an Hochschulen: Daten zu Studierenden und Studienanfänger/-innen an* *deutschen Hochschulen im Wintersemester 2015/2016 (endgültige Ergebnisse)*. Retrieved from the Destatis Web site: https://www.destatis.de/DE/Publikationen/Thematisch/BildungForschungKultur/Hochschulen/StudierendeHochschulenEndg.html

German Federal Statistical Office [Statistisches Bundesamt (Destatis)]. (2017a). *Current expenditure (basic). State & Society – Education, Research, Culture – Educational Finance* [*Laufende Ausgaben (Grundmittel). Staat & Gesellschaft – Bildung, Forschung, Kultur – Bildungsfinanzen*]. Retrieved from the Destatis Web site: https://www.destatis.de/DE/ZahlenFakten/GesellschaftStaat/BildungForschungKultur/BildungKulturfinanzen/Glossar/Laufende_Ausgaben.html

German Federal Statistical Office [Statistisches Bundesamt (Destatis)]. (2017b). *Development of entry rate of Higher Education in Germany from 2000 to 2016* [*Entwicklung der Studienanfängerquote in Deutschland von 2000 bis 2016*]. Retrieved from the Statista Web site: https://de.statista.com/statistik/daten/studie/72005/umfrage/entwicklung-der-studienanfaengerquote/

German Forum for Higher Education in the Digital Age (HFD) [Hochschulforum Digitalisierung]. (2016a). Discussion paper: 20 Theses on digital teaching and learning in higher education. (Working Paper No. 18, May 2016). (*Vol. 2*). Berlin: Retrieved from the Office of the German Forum for Higher Education in the Digital Age at the Stifterverband für die Deutsche Wissenschaft e.V. Web site: https://hochschulforumdigitalisierung.de/sites/default/files/dateien/HFD_AP_Nr_18_Discussion_Paper.pdf

German Forum for Higher Education in the Digital Age (HFD) [Hochschulforum Digitalisierung]. (2016b). The Digital Turn: Higher Education in the digital age [Hochschulbildung im digitalen Zeitalter]. (Working Paper No. 27). Berlin: Retrieved from the Office of the German Forum for Higher Education in the Digital Age at the Stifterverband für die Deutsche Wissenschaft e.V. Web site: https://hochschulforumdigitalisierung.de/sites/default/files/dateien/Abschlussbericht.pdf

German Institute for Economic Research [Deutsches Institut dür Wirtschaftsfforschung] (DIW). (2012). *City Ranking 2012: The 50 biggest German cities in a test* [*Städteranking 2012: Die 50 größten deutschen Städte im Test*]. Cologne.

Gerstner, L. V., Jr. (2002). *Who says elephants can't dance? Inside IBM's historic turnaround*. New York, NY: HarperCollins Publishers.

Giesel, K. D. (2007). *Leitbilder in den Sozialwissenschaften: Begriffe, Theorien und Forschungskonzepte* (Doctoral dissertation). Freie University, Berlin, (2005, 1st ed.). Wiesbaden: VS Verlag für Sozialwissenschaften. Retrieved from http://www.socialnet.de/rezensionen/isbn.php?isbn=978-3-531-15648-4

Gläser, J., & Laudel, G. (2010). *Experteninterviews und qualitative Inhaltsanalyse als Instrumente rekonstruierender Untersuchungen* (4th ed.). Wiesbaden: Springer VS Verlag für Sozialwissenschaftern.

Globalization. (2017). In *BusinessDictionary online*. Retrieved from http://www.businessdictionary.com/definition/globalization.html

Glorius, B. (2016). Gekommen, um zu bleiben? Der Verbleib internationaler Studierender in Deutschland aus einer Lebenslaufperspektive. *Raumforschung und Raumordnung*, *74*(4), 361-371.

Goll, I., Sambharya, R. B., & Tucci, L. A. (2001). Top management team composition, corporate ideology, and firm performance. *MIR: Management International Review*, *41*(2),109-129.

Gomes-Casseres, B. (1996). *The alliance revolution: The new shape of business rivalry*. Cambridge, MA: Harvard University Press.

Gomez, P., Meynhardt, T., & Strathoff, P. (2017). *GemeinwohlAtlas Deutschland: Der gesellschaftliche Nutzen von deutschen sowie internationalen Organisationen und Institutionen systematisch untersucht und transparent abgebildet*. Accessed 2017, June 5, from Center for Leadership and Values in Society Web site: http://www.gemeinwohlatlas.de/hintergrund.

Governing Mayor of Berlin [Regierender Bürgermeister von Berlin]. (2017, January). *Guidelines of science policy 1* [*Leitlinien für die Berliner Wissenschaftspolitik 1*]. Retrieved from Berlin City Online Web site: https://www.berlin.de/sen/wissenschaft/wissenschaftspolitik/leitlinien/

Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, *78*(6), 1360-1380.

Guri-Rosenblit, S., Sebkova, H., & Teichler, U. (2007). Massification and diversity of higher education: Interplay of complex dimensions. *Higher Education Policy*, *20*, 373-389.

Gürüz, K. (2003). Presentation at the Convocation, 2003, October 8, Binghamton, New York: *Higher education in the global knowledge economy.* Retrieved from https://pdfs.semanticscholar.org/e359/24af63e5680b7306863aa57f91b6c51c7a89.pdf

Hahn, K. (2003). Die Globalisierung des Hochschulsektors und das 'General Agreement on Trade in Services' (GATS). *Die Hochschule*, *1*(2003), 48-73.

Hahn, K. (2004). *Die Internationalisierung der deutschen Hochschulen: Kontext, Kernprozesse, Fallstudien und Strategien* (1st ed.). *Hochschulforschung* (Vol. 1). Wiesbaden: VS-Verlag für Sozialwissenschaften.

Hahn, K. (2005). German universities in the process of globalisation, Europeanisation and internationalisation. In J. Huisman & M. van der Wende (Eds.), *On cooperation and competition II. Institutional responses to internationalisation, Europeanisation and globalisation* (pp. 19-38). Bonn: Lemmens.

Hambrick, D. C. (2007). Upper echelons theory: An update. *Academy of Management Review*, *32*(2), 334-343.

Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, *9*(2), 193-206.

Hamburg State Parliament [Hamburger Bürgerschaft], (2001, July). *Hamburg Higher Education Act* [*Hamburgisches Hochschulgesetz*]. (Revised 2017, April 4). Retrieved 2017, May 20 from the Hamburg State Parliament [Hamburger Bürgerschaft] Web site: http://www.landesrecht-hamburg.de

Hamel, G., Doz, Y. L., & Prahalad, C. K. (1989). Collaborate with your competitors and win. *Harvard Business Review*, *67*(1), 133-139.

Hanft, A. (2000). Leitbilder an Hochschulen: Symbolisches oder strategisches Management? In A. Hanft (Ed.), *Hochschulwesen Wissenschaft und Praxis. Hochschulen managen? Zur Reformierbarkeit der Hochschulen nach Managementprinzipien* (pp. 121-133). Neuwied: Luchterhand Publishers.

Harribey, L. (2011). Strategic value of corporate citizenship. In S. O. Idowu & C. Louche (Eds.), *Theory and practice of corporate social responsibility* (pp. 23-38). Berlin, Heidelberg: Springer Publishers.

Haslam, S. A., Reicher, S. D., & Platow, M. J. (Eds.) (2011). *The new psychology of leadership: Identity, influence, and power*. Hove: Psychology Press.

Hazelkorn, E. (2012). "Everyone Wants to Be Like Harvard" – Or Do They? Cherishing All Missions Equally. In A. Curaj, P. Scott, L. Vlasceanu, & L. Wilson (Eds.), *European higher education at the crossroads* (pp. 837-862). Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-94-007-3937-6_43

Hazelkorn, E. (2013). Measuring world-class excellence and the global obsession with rankings. In R. King, S. Marginson, & R. Naidoo (Eds.), *Handbook on globalization and higher education* (pp. 497-515). Cheltenham: Edward Elgar Publishing.

Hazelkorn, E. (2015). *Rankings and the reshaping of higher education: The battle for world-class excellence*. Dordrecht: Springer Netherlands.

Heinrichs, W. (2010). *Hochschulmanagement*. Munich: Oldenbourg Science Publisher.

Helfferich, C. (2011). *Die Qualität qualitativer Daten: Manual für die Durchführung qualitativer Interviews* (4th ed.). Wiesbaden: Springer VS Verlag für Sozialwissenschaften.

Helms, M. M., & Nixon, J. (2010). Exploring SWOT analysis–where are we now? A review of academic research from the last decade. *Journal of Strategy and Management*, *3*(3), 215-251.

Henze, P. (2008). *Unternehmensleitbilder als Ausdruck der Unternehmenskultur: Andere Branchen, andere Werte; eine systematische Analyse deutscher Unternehmensleitbilder*. Saarbrücken: VDM Verlag Dr. Müller GmbH & Co.

Herbst, M. (2007). *Financing public universities*. Dordrecht: Springer Netherlands.

Hermann, J. (2014, March 28). Studenten aus China in Heidelberg: Warum Chinesen oft aufs Kneipendiplom verzichten. *Stuttgarter Zeitung*. Retrieved from http://www.stuttgarter-zeitung.de/inhalt.studenten-aus-china-in-heidelberg-warum-chinesen-oft-aufs-kneipendiplom-verzichten.6f193fa7-de8f-4236-a25d-80f671377bb2.html

Herrmann, W. A. (2005). Unternehmen Universität-Universität unternehmen: Deutschland im Paradigmenwechsel des Hochschulsystems. *Ifo Schnelldienst*, *58*(38/39), 8.

Herrmann, W. A. (2015, December 9). Interview by C. Magazin, & B. Rundfunk. Munich.

Hesse State Parliament [Hessischer Landtag], (2009, December). *Hesse Higher Education Act* [*Hessisches Hochschulgesetz*]. (Revised 2015, November 30). Retrieved 2017, May 20 from the Hesse State Parliament [Hessischer Landtag] Web site: http://www.rv.hessenrecht.hessen.de

Heublein, U. (2014). *Die Entwicklung der Studienabbruchquoten an den deutschen Hochschulen: statistische Berechnungen auf der Basis des Absolventenjahrgangs 2012*. Hanover: Deutsches Zentrum für Hochschul- und Wissenschaftsforschung (DZHW).

HHL Graduate School of Management. (2017). *Mission & Vision* | HHL Europe, Germany. Retrieved from http://www.hhl.de/en/about/mission-vision/

Hinterhuber, H. H. (2015). *Strategische Unternehmensführung: Das Gesamtmodell für nachhaltige Wertsteigerung* (9th Rev. ed.). Berlin: Erich Schmidt Verlag GmbH & Co.

Hitt, M. A., Ireland, R. D., Camp, S. M., & Sexton, D. L. (2002). Strategic entrepreneurship: Integrating entrepreneurial and strategic management perspectives. *Strategic Entrepreneurship: Creating a New Mindset*, *22*(Special Issue), 1-16.

Hitt, M. A., Tihanyi, L., Miller, T., & Connelly, B. (2006). International diversification: Antecedents, outcomes, and moderators. *Journal of Management*, *32*(6), 831-867. https://doi.org/10.1177/0149206306293575

Hoffacker, W. (2000). *Die Universität des 21. Jahrhunderts: Dienstleistungsunternehmen oder öffentliche Einrichtung?* Berlin: Luchterhand Publishers.

Holmes, R. (2017, June 16). *University ranking watch: The abuse and use of rankings* [Web log post]. Retrieved from http://rankingwatch.blogspot.de/

Hood, C. (1995). The “New Public Management” in the 1980s: Variations on a theme. *Accounting, Organizations and Society*, *20*(2), 93-109.

Horstmann, J. (2014, December 29). Studium in Großbritannien: Die unbeliebten Chinesen. *Die Zeit*. Retrieved from http://www.zeit.de/studium/uni-leben/2014-12/grossbritannien-universitaeten-chinesische-studenten-spannungen

Huff, A. S. (2009). *Designing research for publication*. London: Sage Publications Ltd.

Hungenberg, H. (2014). *Strategisches Management in Unternehmen: Ziele – Prozesse – Verfahren* (8th ed.). (*SpringerLink: Books*). Wiesbaden: Gabler.

Hüther, O. (2010). *Von der Kollegialität zur Hierarchie? Eine Analyse des New Managerialism in den Landeshochschulgesetzen. Organization & Public Management.* Wiesbaden: VS Verlag für Sozialwissenschaften; GWV Fachverlage GmbH. Retrieved from http://dx.doi.org/10.1007/978-3-531-92538-7

ICEF Monitor. (2017). *Survey finds prospective students put the emphasis on welcome and teaching quality: Market intelligence for international student recruitment*. Retrieved from http://monitor.icef.com/2017/05/prospective-students-put-emphasis-welcome-teaching-quality/

In der Smitten, S., & Jaeger, M. (2012). *Ziel-und Leistungsvereinbarungen als Instrument der Hochschulfinanzierung*. Hanover: HIS Hochschul-Informations-System GmbH.

Inkpen, A., & Choudhury, N. (1995). The seeking of strategy where it is not: Towards a theory of strategy absence. *Strategic Management Journal*, *16*(4), 313-323.

Intriligator, B. A. (1992). Paper presented at the Annual Meeting of the American Educational Research Association 1992: *Establishing interorganizational structures that facilitate successful school partnerships*. San Francisco, CA. Retrieved from http://files.eric.ed.gov/fulltext/ED347692.pdf

Isaacson, W. (2015). *Steve Jobs: The exclusive biography.* London: Abacus Publishing.

Jaspers, K. (1980). *Die Idee der Universität* (1st ed. Reprint.). Berlin: Springer Publishing.

Javalgi, R. R. G., Griffith, D. A., & White, D. S. (2003). An empirical examination of factors influencing the internationalization of service firms. *Journal of Services Marketing*, *17*(2), 185-201.

Johanson, J., & Vahlne, J.-E. (1977). The internationalization process of the firm: A model of knowledge development and increasing foreign market commitments. *Journal of International Business Studies*, *8*(1), 23-32.

Johnson, G. (1987). *Strategic change and the management process*. Oxford: Blackwell.

Jones, G. R., & Hill, C. W. L. (2013). *Theory of strategic management: With cases* (10th ed). Mason, OH: South-Western Cengage Learning.

Kandulla, M. (2014). Die wirtschaftliche und soziale Lage der Studierenden in Nord-Rhein-Westfalen. Bielefeld: Studentenwerk Bielefeld.

Kane, G. C., Palmer, D., Phillips, A., Nguyen, A., Kiron, D., & Buckley, N. (2015). Strategy, not technology, drives digital transformation. *MIT Sloan Management Review and Deloitte University Press*, *14*, 3-16.

Kanter, R. M. (1994). Collaborative advantage: The art of alliances. *Harvard Business Review, 72*(4), 96-108.

Kaufmann, F.-X. (2005). *Schrumpfende Gesellschaft: Vom Bevölkerungsrückgang und seinen Folgen* (Original 1st. ed.). Frankfurt am Main: Suhrkamp Publishing.

Kehm, B. M. (2013). The impact of rankings on the European higher education landscape. In T. Erkkilä (Ed.), *Global university rankings: Challenges for European higher education* (pp. 20-38). Basingstoke: Palgrave Macmillan.

Kehm, B. M., & Stensaker, B. (2009). Introduction. In B. M. Kehm & B. Stensaker (Eds.), *Global Perspectives on Higher Education* (Vol. 18). *University rankings, diversity and the new landscape of higher education* (pp. vii-xix). Rotterdam: Sense Publishers.

Kehm, B. M., & Teichler, U. (2007). Research on internationalisation in higher education. *Journal of Studies in International Education*, *11*(3-4), 260-273.

Keller, A. (2004). Die Universität als Unternehmen? *Utopie kreativ, 168*, 901-909.
Keller, G. (1983). *Academic strategy: The management revolution in American higher education*. Baltimore, MD: Johns Hopkins University Press.
Kilduff, M., & Brass, D. J. (2010). Organizational social network research: Core ideas and key debates. *The Academy of Management Annals*, *4*(1), 317-357.
Kim, T., & Locke, W. (2010). *Transnational academic mobility and the academic profession*. Higher education in society: A research report. Centre for Higher Education Research and Information, The Open University, London. Retrieved from http://oro.open.ac.uk/21282/1/Higher_Education_and_Society._Chapter_4_-_Transnational_academic_mobility.pdf
King, N., & Horrocks, C. (2010). *Interviews in qualitative research*. Thousand Oaks, CA: Sage Publications, Inc.
King, W. R., & Cleland, D. I. (1978). *Strategic planning and policy*. New York, NY; London: Van Nostrand-Reinhold Company.
Kirchgeorg, M., Meynhardt, T., Pinkwart, A., Suchanek, A., & Zülch, H. (2016). *The Leipzig leadership model*. Leipzig: HHL Graduate School of Management; HHL Academic Press.
Kitchin, R. (2014). Big Data, new epistemologies and paradigm shifts. *Big Data & Society*, *1*(1). DOI: https://doi.org/10.1177/2053951714528481.
Knight, J., & De Wit, H. (1995). Strategies for internationalisation of higher education: Historical and conceptual perspectives. In H. de Wit (Ed.) *Strategies for internationalisation of higher education: A comparative study of Australia, Canada, Europe and the United States of America*, 5-32. Carbondale, IL: Association of International Education Administrators.
Kohmann, O. (2012). *Strategisches Management von Universitäten und Fakultäten*. Berlin: Springer-Verlag.
Kosmützky, A. (2010). *Von der organisierten Institution zur institutionalisierten Organisation? Eine Untersuchung der (Hochschul-) Leitbilder von Universitäten* (Doctoral dissertation). Bielefeld University, Bielefeld. Retrieved from Bielefeld University Library database http://nbn-resolving.de/urn:nbn:de:hbz:361-18701. (PUB-ID 2303944)
Krücken, G., & Meier, G. (2006). Turning the university into an organizational actor: Globalization and organization. In G. S. Drori, J. W. Meyer, & H. Hwang (Eds.), *Globalization and organization. World society and organizational change* (pp. 241-257). Oxford; New York, NY: Oxford University Press.
Krzywinski, N. (2014). Universitätskultur als kritischer Faktor in strategischen Veränderungsprozessen. In E. Scherm (Ed.), *Management unternehmerischer Universitäten. Realität, Vision oder Utopie?* (pp. 83-98). Munich: Hampp Publishers.
Kuckartz, U. (2016). MAXQDA Analytics Pro [Software]. Berlin: VERBI GmbH. Available from http://www.maxqda.de
Kühl, S. (2011, October 11). Die neue Macht der Präsidien und Rektorate. *Süddeutsche Zeitung*. Retrieved from www.sueddeutsche.de
Kvale, S., & Brinkmann, S. (2009). *Interviews: Learning the craft of qualitative research*. Thousand Oaks, CA: Sage Publications, Inc.
Latham, M. (2001). The network university. *Journal of Higher Education Policy and Management*, *23*(1), 7-17. https://doi.org/10.1080/13600800020047207
Leiner, D. J. (2014). SosciSurvey. SoSciSurvey [computer questionnaire software]. Munich: SoSciSurvey GmbH. Retrieved from https://www.soscisurvey.de
Leslie, L. L., & Johnson, G. P. (1974). The market model and higher education. *The Journal of Higher Education*, *45*(1), 1-20.

Leuthesser, L., & Kohli, C. (1997). Corporate identity: The role of mission statements. *Business Horizons*, *40*(3), 59-66.

Levitt, T. (1966). Innovative imitation. *Harvard Business Review, 44*(5), 63-70.

Liebeskind, J. P. (1996). Knowledge, strategy, and the theory of the firm. *Strategic Management Journal*, *17*(S2), 93-107.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry.* London; Beverly Hills, CA: Sage Publications, Inc.

Littig, B. (2009). Interviews mit Eliten – Interviews mit ExpertInnen: Gibt es Unterschiede. In A. Bogner, B. Littig, & W. Menz (Eds.), *Experteninterviews. Theorien, Methoden, Anwendungsfelder* (3rd ed.) (pp. 117-136). Wiesbaden: Springer VS Verlag für Sozialwissenschaften.

Locke, W. (2011). The institutionalization of rankings: Managing status anxiety in an increasingly marketized environment. In J. Shin (Ed.), *University rankings: Theoretical basis, methodology and impacts on global higher education* (The Changing Academy: The Changing Academic Profession in International Comparative Perspective, Vol. 3) (pp. 201-228). Dordrecht: Springer Netherlands.

Lockwood, G. (1985a). Governance. In G. Lockwood & J. L. Davies (Eds.), *Universities: The management challenge* (pp. 102-138). London: The Society for Research into Higher Education.

Lockwood, G. (1985b). Universities as organizations. In G. Lockwood & J. L. Davies (Eds.), *Universities: The management challenge* (pp. 24-45). Windsor: The Society for Research into Higher Education and NFER-Nelson Publishing Co. Ltd.

Lockwood, G., & Davies, J. L. (Eds.). (1985). *Universities: The management challenge*. Windsor: Society for Research into Higher Education and NFER-Nelson Publishing Co. Ltd.

Lorange, P., & Roos, J. (1993). *Strategic alliances: Formation, implementation, and evolution*. Oxford: Basil Blackwell Publishers.

Lower Saxony Ministry of Science and Culture [Niedersächsisches Ministerium für Wissenschaft und Kultur], (2014). *Guidelines for the development of target agreements*. Retrieved from the Lower Saxony Ministry of Science and Culture Web site: http://www.mwk.niedersachsen.de/startseite/

Lower Saxony State Parliament [Niedersächsischer Landtag], (2007, February), *Higher Education Act of Lower Saxony* [Niedersächsisches *Hochschulgesetz*]. (Revised 2016, December 20). Retrieved 2017, 20 May from the Lower Saxony State Parliament [Niedersächsischer Landtag] Web site: http://www.nds-voris.de/

Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review, 21*(1), 135-172.

Lundvall, B.-Å., Rasmussen, P., & Lorenz, E. (2008). Education in the learning economy: a European perspective. *Policy Futures in Education*, *6*(6), 681-700.

Maasen, S., & Weingart, P. (2006). Unternehmerische Universität und neue Wissenschaftskultur. *Die Hochschule*, *01*, 22-23.

Marginson, S. (1997). Competition and contestability in Australian higher education, 1987-1997. *The Australian Universities Review*, *40*(1), 5-14.

Marginson, S. (2007). Global university rankings: Implications in general and for Australia. *Journal of Higher Education Policy and Management*, *29*(2), 131-142.

Marginson, S. (2009). The knowledge economy and higher education: A system for regulating the value of knowledge. *Innovación Educativa*, *9*(47), 63-71.

Marginson, S. (2010). Higher education in the global knowledge economy. *Procedia-Social and Behavioral Sciences*, *2*(5), 6962-6980.
Marginson, S., & Van der Wende, M. C. (2006). To rank or to be ranked: The impact of global rankings in higher education. *Journal of Studies in International Education*, *11*(3/4), 306-329.
Maringe, F. (2006). University and course choice: Implications for positioning, recruitment and marketing. *International Journal of Educational Management*, *20*(6), 466-479.
Maringe, F. (2010). The meanings of globalization and internationalization in HE: Findings from a world survey. In N. Foskett & F. Maringe (Eds.), *Globalization and internationalization in higher education. Theoretical, strategic and management perspectives* (pp. 17-34). London; New York, NY: Continuum Publishers.
Maringe, F. (2012). The meanings of globalization and internationalization in HE: Findings from a world survey. In N. Foskett & F. Maringe (Eds.), *Globalization and internationalization in higher education. Theoretical, strategic and management perspectives* (pp. 17-34). London; New York, NY: Continuum Publishers.
Maringe, F., & Carter, S. (2007). International students' motivations for studying in UK HE: Insights into the choice and decision-making of African students. *International Journal of Educational Management*, *21*(6), 459-475.
Marszal, A. (2012, October 4). University rankings: Which world university rankings should we trust? Two different university world rankings showed wildly variable results for UK universities – so which one should we trust? *The Telegraph*. Retrieved from http://www.telegraph.co.uk/education/universityeducation/9584155/University-rankings-which-world-university-rankings-should-we-trust.html
Martinez, M. C., & Wolverton, M. (2009). *Innovative strategy-making in higher education*. Charlotte, NC: Information Age Publishing (IAP).
Matei, L. (2012). A policy gap: Financing in the European Higher Education Area. In A. Curaj, P. Scott, L. Vlasceanu, & L. Wilson (Eds.), *European higher education at the crossroads* (pp. 677-690). Dordrecht: Springer Netherlands.
Mause, K. (2007). *Konsumentenschutz im Hochschulbereich. Unvollständige Nachfragerinformation, Marktversagen und markt-basierte Schutzmechanismen. Abhandlungen zu Bildungsforschung und Bildungsrecht* (Vol. 15). Berlin: Duncker & Humblot.
Mayring, P. (1991). Qualitative Inhaltsanalyse. In U. Flick, E. von Kardorff, H. Keupp, L. von Rosenstiel, & S. Wolff (Eds.), *Handbuch Qualitative Sozialforschung. Grundlagen, Konzepte, Methoden und Anwendungen*. Munich: Psychologie Verlags Union.
Mayring, P. (2015). *Qualitative Inhaltsanalyse: Grundlagen und Techniken* (12th Rev. ed.). Weinheim: Beltz Pädagogik.
Mazzarol, T., & Soutar, G. N. (1999). Sustainable competitive advantage for educational institutions: A suggested model. *International Journal of Educational Management*, *13*(6), 287-300. https://doi.org/10.1108/09513549910294496
Mazzarol, T., & Soutar, G. N. (2001). *The global market for higher education: Sustainable competitive strategies for the new millennium*. Cheltenham: Edward Elgar Publishing.
Mazzarol, T., & Soutar, G. N. (2002). "Push-pull" factors influencing international student destination choice. *International Journal of Educational Management*, *16*(2), 82-90.
McPhillips, D. (2017, March 7). The Best Countries to Study Abroad. *U.S. News*. Retrieved from https://www.usnews.com/news/best-countries/best-study-abroad

Mecklenburg-Vorpommern State Government. (2015, May 29). *Benchmarks of university development 2016-2020*. Retrieved from information by Mecklenburg-Vorpommern State Government.

Mecklenburg-Vorpommern State Parliament [Landtag Mecklenburg-Vorpommern], (2011, November). *Higher Education Act Mecklenburg-Vorpommern* [Gesetz *über die Hochschulen des Landes Mecklenburg-Vorpommern (Landeshochschulgesetz)*]. (Revised 2016, July 11). Retrieved 2017, 20 May from the Mecklenburg-Vorpommern State Parliament [Landtag Mecklenburg-Vorpommern] Web site: http://www.landesrecht-mv.de

Meffert, H., & Bruhn, M. (2012). *Dienstleistungsmarketing: Grundlagen, Konzepte, Methoden* (7th Reworked and Expanded ed.). (Meffert-Marketing-Edition). Wiesbaden: Springer Gabler Publishing.

Merton, R. K. (1968). The Matthew effect in science. *Science*, *159*(3810), 56-63.

Meynhardt, T. (2016). Public value: The contribution of organizations and companies to the common good. *Responsible entrepreneurship – Business and society: Bridging the gap* (p. 25-35). Gütersloh: Bertelsmann Publishers.

Meynhardt, T., Brieger, S. A., Strathoff, P., Anderer, S., Bäro, A., Hermann, C., et al. (2017). Public value performance: What does it mean to create value in the public sector? In R. Andessner, D. Greiling, & R. Vogel (Eds.). *Public sector management in a globalized world* (pp. 135-160). Wiesbaden: Springer Gabler.

Meynhardt, T., Gomez, P., & Schweizer, M. (2014, February 3). Die Firma muss der Gesellschaft nutzen. *Frankfurter Allgemeine Zeitung,* p. 18. Retrieved from https://www.alexandria.unisg.ch/229153/1/20140203_FAZ%20Public%20Value.pdf

Michels, B., Schäfer, A., Schifferings, M., Schnabel, F. & Wagenfeld, F. (Eds.). (2014). *Die Internationale Hochschule: Die Internationalisierung der deutschen Hochschulen im Zeichen virtueller Lehr- und Lernszenarien*. Bonn: DAAD.

Middendorff, E., Apolinarski, B., Poskowsky, J., Kandulla, M., & Netz, N. (2013). *Die wirtschaftliche und soziale Lage der Studierenden in Deutschland 2012. Sozialerhebung des Deutschen Studentenwerks durchgeführt durch das HIS-Institut für Hochschulforschung.* Berlin: Federal Ministry of Education and Research [Bundesministerium für Bildung und Forschung] (BMBF).

Miklavič, K. (2012). Academic values against the commodification of higher education. In A. Curaj, P. Scott, L. Vlasceanu, & L. Wilson (Eds.), *European higher education at the crossroads* (pp. 119-138). Dordrecht: Springer Netherlands.

Mintzberg, H. (1991). The effective organization: Forces and forms. *MIT Sloan Management Review, 32*(2), 54-67.

Mintzberg, H., Ahlstrand, B., & Lampel, J. (2005). *Strategy safari: A guided tour through the wilds of strategic management* (Free Press trade paperback ed.). New York, NY: Free Press. Retrieved from http://www.loc.gov/catdir/description/simon031/98009694.html

Mintzberg, H., & Rose, J. (2003). Strategic management upside down: Tracking strategies at McGill University from 1829 to 1980. *Canadian Journal of Administrative Sciences/ Revue Canadienne des Sciences de l'Administration*, *20*(4), 270-290.

Moed, H. F. (2006). *Citation analysis in research evaluation*. Dordrecht: Springer Science & Business Media.

Monopolies Commission [*Monopolkommission*]. (2000). *Competition as a guiding principle of higher education policy: Special evaluation of the Monopolies Commission* [*Wettbewerb als Leitbild für die Hochschulpolitik: Sondergutachten der Monopolkommission*]. Bonn: Monopolies Commission. (Special Report No. 30)

Morrill, R. L. (2010). *Strategic leadership: Integrating strategy and leadership in colleges and universities* (The ACE Series on Higher Education). Lanham, MD: Rowman & Littlefield Publishers.

Moscati, R. (2012). University governance in changing European systems of higher education. In A. Curaj, P. Scott, L. Vlasceanu, & L. Wilson (Eds.), *European higher education at the crossroads* (pp. 599-611). Dordrecht: Springer Netherlands.

Mukherjee, J. (2015). Internationalization of German universities [Internationalisieurng der deutschen Hochschulen]. In H. Nasko (Ed.), *Update. An initiative of the Heinz Nixdorf Foundation and the Donors' Association of Science* [*Eine Initiative der Heinz Nixdorf Stiftung und des Stifterverbandes der Wissenschaften*] (No. 2) (pp. 7-10). Berlin: Stifterverband für die deutsche Wissenschaft, Stifterverband.

Müller-Böling, D. (2001). Die unternehmerische Hochschule: Wissenschaftlichkeit ist unternehmerisches Ziel. *Opensource*. (01-2001), 21-22.

Müller-Böling, D., & Krasny, E. (1998). Documentation of the International Conference on Strategy Development in Universities and Fields, Hamburg University of Economics and Politics (HWP) and the CHE (Center for Higher Education), Hamburg, October 1996: *Strategische Planung an deutschen Hochschulen – theoretisches Konstrukt und erste Ansätze eine Methodologie*. In D. Müller-Böling et al. (Eds.), *Strategieentwicklung an Hochschulen*. (pp. 13-48). Gütersloh: Bertelsmann-Stiftung Publishing.

Münch, C., & Hoch, M. (2013). *Student mobility and its effect on the host country* [*Studentische Mobilität und ihre auswirkung auf das Gastland*]. Berlin: Prognos AG.

Nag, R., Hambrick, D. C., & Chen, M. (2007). What is strategic management, really? Inductive derivation of a consensus definition of the field. *Strategic Management Journal*, *28*(9), 935-955.

Neave, G. (1992, December 10). Managing higher education international cooperation: Strategies and solutions. *Unpublished reference document for UNESCO, Paris*, 88-169. Retrieved from http://unesdoc.unesco.org/images/0009/000986/098679eb.pdf

Neave, G. (2000). The universities' responsibilities to society: International perspectives. In G. Neave (Ed.) *The universities' responsibilities to society: International perspectives*. (Issues in Higher Education Series). Amsterdam, Oxford: Pergamon Press.

Neubauer, D. (2014). The university in the context of continuing globalization. In J. C. Shin & U. Teichler (Eds.), *The future of the post-massified university at the crossroads* (pp. 29-43) (Knowledge Studies in Higher Education 1). Switzerland: Springer International Publishing.

Nietzsche, F. (2011). *Morgenröte: Gedanken über die moralischen Vorurteile*. Cologne: Anaconda Publishers GmbH. (Original work published 1881)

Norburn, D., & Birley, S. (1988). The top management team and corporate performance. *Strategic Management Journal*, *9*(3), 225-237.

North Rhine-Westphalia Ministry of the Interior and Municipality [Ministerium für Inneres und Kommunales des Landes Nordrhein-Westfalen]. (2017). *Capacity Act, § 1* [*Kapazitätsverordnung, § 1*]. Retrieved from the North Rhine-Westphalia Ministry of the Interior and Municipality [Ministerium des Innern Nordrhein-Westfalen] Web site: https://recht.nrw.de/lmi/owa/br_text_anzeigen?v_id=71020170529104738830.

North Rhine-Westphalia State Government [Landesregierung Nordrhein-Westfalen]. (2016, November 18). *University Development Plan* [*Landeshochschulentwicklungsplan Nordrhein-Westfalen 3*]. Retrieved from https://www.land.nrw/en/welcome

North Rhine-Westphalia State Parliament [Nordrhein-Westfälischer Landtag], (2014, September). *University Future Law* [*Hochschulzukunftsgesetz*]. (Revised 2011, September 9).

Retrieved 2017, May 20 from the North Rhine-Westphalia State Parliament [Nordrhein-Westfälischer Landtag] Web site: https://recht.nrw.de

Obamba, M. O., & Mwema, J. K. (2009). Symmetry and asymmetry: New contours, paradigms, and politics in African academic partnerships. *Higher Education Policy*, *22*(3), 349-371.

Oblinger, D. (Ed.) (2012). Game changers: Education and information technologies: Educause.

OECD. (1996). The knowledge-based economy. Organization for Economic Co-operation and Development. Paris. Retrieved from the OECD Web site: https://www.oecd.org/sti/sci-tech/1913021.pdf

OECD. (2007). OECD/IMHE International Conference 2007: *Higher Education and Regions: Globally Competitive, Locally Engaged*. Organization for Economic Co-operation and Development. Paris: OECD Publishing. Retrieved from the OECD Web site: https://www.oecd.org/edu/imhe/39552613.pdf

OECD. (2011). *International Migration Outlook 2011*. Organization for Economic Co-operation and Development. Paris: OECD Publishing. Retrieved from http://www.keepeek.com/Digital-Asset-Management/oecd/social-issues-migration-health/international-migration-outlook-2011_migr_outlook-2011-en#page5

OECD. (2013). *Immigration of foreign labour force*: *German inventory and need for reforms* [*Zuwanderung ausländischer Arbeitskräfte: Deutschland – Bestandsaufnahme und Reformbedarf*. Organization for Economic Co-operation and Development. Paris: OECD Publishing. Retrieved from http://www.keepeek.com/Digital-Asset-Management/oecd/social-issues-migration-health/zuwanderung-auslandischer-arbeitskrafte-deutschland-german-version_9789264191747-de#page1

Olssen, M., & Peters, M. A. (2005). Neoliberalism, higher education and the knowledge economy: From the free market to knowledge capitalism. *Journal of Education Policy*, *20*(3), 313-345.

Opdenakker, R. (2006). Advantages and disadvantages of four interview techniques in qualitative research. *Forum: Qualitative Social Research* [*Sozialforschung*] *7*(4). http://www.qualitative-research.net/index.php/fqs/article/view/175

Orr, D., Jaeger, M., & Schwarzenberger, A. (2007). Performance-based funding as an instrument of competition in German higher education. *Journal of Higher Education Policy and Management*, *29*(1), 297-312.

Pascarella, P., & Frohman, M. A. (1989). *The purpose-driven organization: Unleashing the power of direction and commitment*. San Francisco, CA: Jossey-Bass Publishers.

Patton, M. Q. (2002). *Qualitative research & evaluation methods* (3rd ed.). London; Thousand Oaks, CA: Sage Publications, Inc.

Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). Thousand Oaks, CA: Sage Publications, Inc.

Peters, T. J. (2010). *The little big things: 163 ways to pursue excellence*. New York, NY; London: HarperCollins Publishers.

Peters, T. J., & Waterman, R. H., Jr. (1982). *In search of excellence: Lessons from America's best-run companies*. New York, NY; London: Harper and Row.

Piekenbrock, D. (2009). *Gabler Kompakt-Lexikon Volkswirtschaftslehre: 4200 Begriffe nachschlagen, verstehen, anwenden* (3rd Rev. & Ext. ed.). Wiesbaden: Gabler | GWV Fachverlage GmbH.

Pindyck, R. S., & Rubinfeld, D. L. (2015). *Mikroökonomie* (8th Updated and Extended ed.). Hallbergmoos: Pearson Deutschland GmbH.

Pinkwart, A. (2007). Innovationen brauchen Freiheit. *Zeitschrift für Wirtschaftspolitik*, *56*(3), 255-267.

Pinkwart, A. (2012a). Neue Herausforderungen für den Wissens- und Technologietransfer im Wissenschaftszeitalter. In E. Hammer & N. Tomaschek (Eds.). *University Meets Industry – die Kultur des Lernens im Umbruch* (pp. 59-67). Münster: Waxmann Publisher GmbH.

Pinkwart, A. (2012b). The new role of universities in the twenty-first century: Universities as engines of innovation and entrepreneurial hubs. *American Institute for Contemporary German Studies (AICGS) Policy Report, 50*. Retrieved from http://www.aicgs.org/site/wp-content/uploads/2012/03/PR-50-Universities-and-Innovation-Pinkwart.pdf

Pinkwart, A. (2012c). German universities and the role of the Excellence Initiative. In R. C. National (Ed.), *Meeting global challenges: German-US innovation policy: Summary of a symposium* (pp. 97-99). Washington, DC: National Academies Press. Retrieved from www.nap.edu/catalog.php?record_id=13488

Pinkwart, A. (2014a). Digitalsierung wird Chefsache: Für eine Überwindung funktionaler Säulen und den Einsatz interdisziplinärerer Projektteams. In A. Pinkwart (Ed.), *HHL Forum 2014: Führung neu denken: Markt und Moral.* (pp. 4-7). Leipzig: Geschäftsführung der HHL gGmbH.

Pinkwart, A. (2014b). Hochschulen zukunftsfest machen: Erfolgreiche ausländische Absolventen sind die besten Botschafter. *Forschung & Lehre*, *21*(1), 36-37.

Pinkwart, A., & Abu El-Ella, N. (2012). *Business economics as a driver of innovation.* (HHL Working Paper 109). Leipzig: HHL Leipzig Graduate School of Management.

Pinkwart, A., Abu El-Ella, N., & Bessant, J. (2014). Changing change management: The new innovation imperative. In H. Albach, H. Meffert, A. Pinkwart, & R. Reichwald (Eds.), *Management of permanent change* (pp. 105-119). Wiesbaden: Springer Fachmedien Wiesbaden GmbH.

Pinkwart, A, & Czinkota, M. (2011, June 22). Gesucht: Eine Humboldt'sche Idee: Eine Universität ist nur dann lebensfähig, wenn beste Lehre mit bestem Transfer einhergehen. *Handelsblatt,* p. 10.

Pinkwart, A., & Czinkota, M. (2012). International business research and the new role of universities (there is sunshine above the clouds). *Thunderbird International Business Review*, *54*(2), 253-261.

Pinkwart, A. (Interviewee) & Jumpertz, S. (Interviewer). (2017, January 20). *Im Kern steht der Purpose* [Interview transcript]. Bonn. Retrieved from Manager Serminare Web site: https://www.managerseminare.de/ms_News/Fuehrungsmodell-fuer-die-Zukunft-Im-Kern-steht-der-Purpose,252264

Pinkwart, A. (Interviewee) & Kirchgessner, K. (Interviewer) (2007, September 24). Hamburg.

Pinkwart, A., & Proksch, D. (2013). The internationalization behavior of German high-tech start-ups: An empirical analysis of key resources. *Thunderbird International Business Review*, *56*(1), 43-53. https://doi.org/10.1002/tie.21595

Porter, M. E. (1990). The competitive advantage of nations. *Harvard Business Review, 68*(2).

Porter, M. E. (2002). What is strategy? *Strategy for business: A reader*, *625*.

Porter, M. E. (2004). *Competitive strategy: Techniques for analyzing industries and competitors.* New York, NY; London: Free Press.

Powell, W. W. (1987). Hybrid organizational arrangements: New form or transitional development? *California Management Review*, *30*(1), 67-87.

Powell, W. W., & Snellman, K. (2004). The knowledge economy. *Annual Review of Sociology*, *30*, 199-220.

Prensky, M. (2010). *Teaching digital natives: Partnering for real learning.* Thousand Oaks, CA: Corwin Press, SAGE.

Preuss, R. (2017, July 1). Flucht nach vorn: An der Konstanzer Uni wird die künftige Elite Syriens ausgebildet. *Sueddeutsche Zeitung*, p. 47.

Quinn, J. B. (1980). *Strategies for change: Logical incrementalism*. (Irwin Series in Management and the Behavioral Sciences). Homewood, IL: Richard D. Irwin, Inc.

Rauhvargers, A. (2013). *Global university rankings and their impact: Report II*. Brussels: European University Association. Retrieved from http://www.eua.be/Libraries/publications-homepage-list/EUA_Global_University_Rankings_and_Their_Impact_-_Report_II

Ravinet, P. (2008). From voluntary participation to monitored coordination: Why European countries feel increasingly bound by their commitment to the Bologna Process. *European Journal of Education*, *43*(3), 353-367.

Reichert, S. (2010). The intended and unintended effects of the Bologna reforms. *Higher Education Management and Policy*, *22*(1), 99-118.

Rhineland-Palatinate State Government, Ministry for Science, Education and Culture [Landesregierung Rheinland-Pfalz, Ministerium für Wissenschaft, Weiterbildung und Kultur]. (2017). *International* [Internationales]. Retrieved from https://mwwk.rlp.de/de/themen/wissenschaft/internationales/

Rhineland-Palatina State Parliament [Rheinland-Pfälzischer Landtag], (2010, November). *Higher Education Act Rhineland-Palatina* [*Landeshochschulgesetz Rheinland-Pfalz*]. (Revised 2017, March 2). Retrieved from the Rhineland-Palatina State Parliament [Rheinland-Pfälzischer Landtag] Web site: http://landesrecht.rlp.de

Rifkin, J. (2014). *The zero marginal cost society: The internet of things, the collaborative commons, and the eclipse of capitalism*. New York, NY: Palgrave Macmillan.

Ripmeester, N., & Pollock, A. (2014). *Willkommen in Deutschland: Wie internationale Studierende den Hochschulstandort Deutschland wahrnehmen* (2013, December). Schriftenreihe Hochschulmarketing (Vol. 8). Bielefeld: W. Bertelsmann Publishers.

Robson, C., & McCartan, K. (2016). *Real world research* (4th Rev. ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Roche, T., & Smith, D. L. (1978). Frequency of citations as criterion for the ranking of departments, journals, and individuals. *Sociological Inquiry*, *48*(1), 49-57.

Romer, P. M. (1987). Growth based on increasing returns due to specialization. *The American Economic Review*, *77*(2), 56-62.

Romer, P. M. (1994). The origins of endogenous growth. *The Journal of Economic Perspectives*, *8*(1), 3-22.

Rostan, M., & Höhle, E. A. (2014). The international mobility of faculty. In F. Huang, M. Finkelstein, & M. Rostan (Eds.), *The internationalization of the academy: Changes, realities and prospects* (pp. 79-89). Dordrecht: Springer Netherlands.

Rowley, D. J., Lujan, H. D., & Dolence, M. G. (1997). *Strategic change in colleges and universities: Planning to survive and prosper.* (The Jossey-Bass Higher and Adult Education Series). San Francisco, CA: Jossey-Bass Publishers.

Rudzki, R. E. J. (1995). The application of a strategic management model to the internationalization of higher education institutions. *Higher Education*, *29*(4), 421-441.

Rudzki, R. E. J. (1998). *Strategic management of internationalization: Towards a model of theory and practice*. (Unpublished doctoral dissertation). School of Education, University of Newcastle upon Tyne, United Kingdom. Retrieved from http://hdl.handle.net/10443/149

Rudzki, R. E. J. (2000). Implementing internationalisation: The practical application of the fractal process model. *Journal of Studies in International Education*, *4*(2), 77-90.

Rue, L. W., & Holland, P. G. (1989). *Strategic management: Concepts and experiences* (2nd ed.). (McGraw-Hill Series in Management). New York, NY: McGraw-Hill.

Saarland Ministry of Justice [Justizministerium des Saarlandes], (2016, November). *Higher Education Act Saarland* [*Saarländisches Hochschulgesetz*]. Retrieved 2017, May 20 from the Saarland Ministry of Justice [Justizministerium des Saarlandes] Web site: http://sl.juris.de

Saarland State Government [Landesregierung des Saarlandes]. (2015). *Saarland State University Development Plan 2015 – 2020* [*Landeshochschulentwicklungsplan des Saarlandes 2015–2020*]. Retrieved from https://www.saarland.de/127359.htm

Saffu, K., & Mamman, A. (2000). Mechanics, problems and contributions of tertiary strategic alliances: The case of 22 Australian universities. *Library Consortium Management: An International Journal*, *2*(2), 44-53. https://doi.org/10.1108/14662760010355185

Saldana, J. (2009). *The coding manual for qualitative researchers*. London: Sage Publications Ltd. Retrieved from http://www.iribresearch.ir/rm/book/The%20coding%20manual%20for%20qualitative%20researchers%20-Johnny_Salda%C3%B1a-2009.pdf

Samuelson, P. A. (1954). The pure theory of public expenditure. *The Review of Economics and Statistics*, *36*(4), 387-389.

Saunders, M. (2012). Choosing participants for research. In G. Symon & C. Cassell (Eds.), *Qualitative organizational research: Core methods and current challenges* (pp. 35-52). London: Sage Publications Ltd.

Saunders, M., & Lewis, P., & Thornhill, A. (2016). *Research methods for business students* (7th ed.). Harlow: Pearson Education Ltd.

Saxon State Government [Landesregierung Sachsen]. (2013). *Saxonian Higher Education Freedom Act, §12 III* [*Sächsisches Hochschulfreiheitsgesetz 1*, §12 III] Saxony: State Government.

Saxon State Ministry for Higher Education, Research and the Arts [Sächsisches Staatsministerium für Wissenschaft und Kunst]. (2016). *University Development Plan 2025* [*Hochschulentwicklungsplanung 2025*]. Dresden: Saxon State Ministry for Higher Education, Research and the Arts.

Saxon State Ministry for Science and Art [Staatsministerin für Wissenschaft und Kunst]. (2012, October). *Saxonian University Freedom Act* [Sächsisches *Hochschulfreiheitsgesetz*]. Dresden: Saxon Ministry for Science and Art.

Saxony-Anhalt State Ministry for Economy and Science [Staatsministerin für Wirtschaft und Wissenschaft]. (2015, July 2). *Saxonia-Anhalt University Structure Plan*. Saxonia-Anhalt: Ministry for Economy and Science.

Saxony-Anhalt State Parliament [Landtag Sachsen Anhalt], (2010, December). *Higher Education Act of the State of Saxony-Anhalt* [*Hochschulgesetz des Landes Sachsen-Anhalt*]. (Revised 2016, February 25). Retrieved 2017, May 20 from the Saxony-Anhalt State Parliament [Landtag Sachsen Anhalt] Web site: http://www.landesrecht.sachsen-anhalt.de

Schein, E. H. (2010). *Organizational culture and leadership* (4th ed.). (The Jossey-Bass Business & Management Series). San Francisco, CA: Jossey-Bass; Chichester: John Wiley and Sons Ltd.

Schimank, U. (2005). 'New public management' and the academic profession: Reflections on the German situation. *Minerva*, *43*(4), 361-376.

Schmid, U., & Baessler, B. (2016). Strategieoptionen für hochschulen im digitalen zeitalter: Ergebnisse einer Studie zu exemplarischen Profilbildungsinitiativen durch digitale Medien an deutschen Hochschulen. *Working Paper No. 29*. Berlin: Geschäftsstelle Hochschulforum Digitalisierung beim Stifterverband für die Deutsche Wissenschaft e.V.

Schleswig-Holstein State Government [Landesregierung Schleswig-Holstein]. (2016). *Information of the government on target agreements with universities 2014-2019* [*Bericht der Landesregierung über Ziel-und Leistungsvereinbarungen mit Hochschulen 2014-2019*] § 11 Abs. 1 Hochschulgesetz (HSG). Retrieved from https://www.landtag.ltsh.de/infothek/wahl18/drucks/3800/drucksache-18-3818.pdf

Schleswig-Holstein State Parliament [Landtag Schleswig-Holstein], (2016, February). *Higher Education Act Schleswig-Holstein* [*Gesetz über die Hochschulen und das Universitätsklinikum Schleswig-Holstei*]. (Revised 2017, March 14). Retrieved 2017, May 20 from the Schleswig-Holstein State Parliament [Landtag Schleswig-Holstein] Web site: http://www.gesetze-rechtsprechung.sh.juris.de

Schumpeter, J. A. (1983). The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle. (R. Opie, Trans; J. E. Elliott, Intro). New Brunswick, NJ; London: Transaction Books. (Original work published 1912)

Scott, P. (1998). Massification, internationalization and globalization. In P. Scott (Ed.) *The Globalization of Higher Education*, 108-129. Milton Keynes: Open University Press

Scott, P. (2000). Globalisation and Higher Education: Challenges for the 21st Century. *Journal of Studies in International Education*, *4*(1), 3-10. https://doi.org/10.1177/102831530000400102

Senge, P. M. (2006). *The fifth discipline: The art and practice of the learning organization*. New York, NY: Crown Publishing Group.

ShanghaiRanking Consultancy. (2016). *Ranking methodology of academic ranking of world universities*. Retrieved from http://www.shanghairanking.com/ARWU-Methodology-2016.html

Shattock, M. (2010). *Managing successful universities*. Berkshire: Open University Press, McGraw-Hill Education.

Shin, J. C., & Toutkoushian, R. K. (2011). The past, present, and future of university rankings. In J. C. Shin, R. K. Toutkoushian, & U. Teichler (Eds.), *University Rankings. Theoretical Basis, Methodology and Impacts on Global Higher Education (The Changing Academy – The Changing Academic Profession in International Comparative Perspective)* (pp. 1-16). Dordrecht: Springer Netherlands.

Silverman, D. (2011). *Interpreting qualitative data: A guide to the principles of qualitative research* (4th ed.). London: Sage Publications, Inc.

Simon, H. A. (1991). Bounded rationality and organizational learning. *Organization Science*, *2*(1), 125-134. https://doi.org/10.1287/orsc.2.1.125

Simon, H. (2007). *Hidden champions of the twenty-first century: The success strategies of unknown world market leaders* [*Hidden Champions des 21. Jahrhunderts: Die Erfolgsstrategien unbekannter Weltmarktführer*]. Frankfurt, Main: Campus Verlag GmbH. Retrieved from http://www.gbv.de/dms/faz-rez/SD1200709231333834.pdf

Sinek, S. (2011). *Start with why: How great leaders inspire everyone to take action*. New York, NY: Portfolio Penguin Publishing Group.

Slater, R. (2003). *Jack Welch and the GE Way*. New York, NY: Tata McGraw-Hill Education.

Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics*, *87*(3), 355-374.

Standing Conference of the Ministers of Education and Cultural Affairs [Kultusministerkonferenz] (KMK). (1998, December 3). *Introduction of accreditation for Bachelor and Master Programmes*. Berlin: KMK.

Standing Conference of the Ministers of Education and Cultural Affairs [Kultusministerkonferenz] (KMK). (2014). *Vorausberechnung der Studienanfängerzahlen 2009–2020* (Document No. 205). Berlin: KMK.

Standing Conference of the Ministers of Education and Cultural Affairs [Kultusministerkonferenz] (KMK). (2017). *Anabin – Information portal for recognition of international degrees* [*Anabin – Informationssystem zur Anerkennung ausländischer Bildungsabschlüsse*]. [Position statement]. Retrieved from the KMK Web site: http://anabin.kmk.org/service/ueber-anabin.html

Stiglitz, J. E. (1975). The theory of "screening," education, and the distribution of income. *The American Economic Review*, *65*(3), 283-300.

Stiglitz, J. E. (1999). Knowledge as a global public good. *Global Public Goods: International Cooperation in the 21st Century*, *1*(9), 308-325.

Stockley, D., & De Wit, H. (2011). The increasing relevance of institutional networks. In H. de Wit (Ed.), *Trends, issues and challenges in internationalisation of higher education* (pp. 45-58). Amsterdam: Centre for Applied Research on Economics and Management, School of Economics and Management of the Hogeschool van Amsterdam.

Stohl, M. (2007). We have met the enemy and he is us: The role of the faculty in the internationalization of higher education in the coming decade. *Journal of Studies in International Education*, *11*(3-4), 359-372.

Suchanek, A. (2015). Freiheit und Vertrauen. In M. Hüther, K. Bergmann, & D. H. Enste (Eds.). *Unternehmen im öffentlichen Raum* (pp. 251-264). Wiesbaden: Springer Fachmedien.

Suder, K. & Killius, N. (2011). *Wettbewerbsfaktor Fachkräfte: Strategien für Deutschlands Unternehmen*. Berlin: McKinsey & Company.

Sutin, S., & Jacob, W. J. (2016). *Strategic transformation of higher education: Challenges and solutions in a global economy*. Lanham: Rowman & Littlefield Publishing.

Sutton, J., & Austin, Z. (2015). Qualitative research: Data collection, analysis, and management. *The Canadian Journal of Hospital Pharmacy, 68*(3), 226.

Taylor, J. (2004). Toward a strategy for internationalisation: Lessons and practice from four universities. *Journal of Studies in International Education*, *8*(2), 149-171. https://doi.org/10.1177/1028315303260827

Technical University of Munich (2017). *TUM is the 'Entrepreneurial University'*. Retrieved June 17, 2017, from https://www.tum.de/studium/studinews/ausgabe-052011/show-052011/article/30555/.

Teichler, U. (2004). The changing debate on internationalisation of higher education. *Higher Education*, *48*(1), 5-26.

Teichler, U. (2007). *Die Internationalisierung der Hochschulen: Neue Herausforderungen und Strategien*. Frankfurt: Campus Verlag.

Teichler, U. (2012). Student mobility in Europe: The informational value of official statistics and graduate surveys. In A. Curaj, P. Scott, L. Vlasceanu, & L. Wilson (Eds), *European Higher Education at the Crossroads* (pp. 485-509). Dordrecht: Springer Netherlands.

Teichler, U. (2014). Higher education and the future social order: Equality of Opportunity, quality, competitiveness? In J. C. Shin & U. Teichler (Eds.), *The future of the post-massified university at the crossroads* (pp. 183-203). Switzerland: Springer International Publishing.

Teichler, U. (2015). Academic mobility and migration: What we know and what we do not know. *European Review*, *23*(S1), S6-S37.

Thompson, A. A., & Strickland, A. J. (1999). *Strategic management: Concepts and cases* (11th ed.). Boston, MA: Irwin McGraw Hill.

Thuringia State Ministry for Education, Science and Culture [Ministerium für Bildung, Wissenschaft und Kultur des Freistaates Thüringen]. (2015). *University Strategy Thuringia 2020* [*Hochschulstrategie Thüringen 2020*]. Retrieved from http://www.thueringen.de/th6/tmwwdg/wissenschaft/hochschule_und_studium/hochschulentwicklung/strategie/index.aspx

Thuringia State Parliament [Landtag Thüringen], (2016, September). *Higher Education Act Thüringen* [*Thüringer Hochschulgesetz]*. Retrieved from the Thuringia State Parliament [Landtag Thüringen] Web site: http://landesrecht.thueringen.de

Times Higher Education World University Rankings (THE). (2010). *World University Rankings subject tables: Robust, transparent and sophisticated*. Retrieved from Times Higher Education Web site: https://www.timeshighereducation.com/world-university-rankings/2010-11/world-ranking/analysis/methodology

Times Higher Education World University Rankings (THE). (2017). *THE World University Rankings explained*. Retrieved from Times Higher Education Web site: https://www.timeshighereducation.com/student/advice/world-university-rankings-explained

Toma, J. D. (2010). Building organizational capacity: Strategic management in higher education. Baltimore, MD: Johns Hopkins University Press.

Torkkeli, L., Saarenketo, S., & Nummela, N. (2015). 18. The development of network competence in an internationalized SME. In J. Larimo, N. Nummela, & T. Mainela (Eds.), *Handbook on International Alliance and Network Research* (p. 459). Cheltenham; Northampton, MA: Edward Elgar Publishing Ltd.

Trow, M. (1973). General report on the Conference on Future Structures of Postsecondary Education, Policies for Higher Education: *The transition from elite to mass to universal higher education* (pp. 55-101). Paris: OECD Publishing.

TU9 German Institutes of Technology. (2017). *Cooperation of German Institutes of Techology.* Berlin: TU9 German Institutes of Technology e.V. Retrieved from https://www.tu9.de/studies/3579.php

Turner, G. (1986). *Universitäten in der Konkurrenz: Möglichkeiten u. Grenzen von Wettbewerb im Hochschulbereich*. Stuttgart: Bonn Aktuell Publishers.

Ulrich, P., & Fluri, E. (1995). *Management. Eine konzentrierte Einführung* (Vol. 7, Rev. ed.). Bern, Stuttgart, Wien: Haupt Publishers.

University Alliance Ruhr [Universitätsallianz Ruhr] (UA Ruhr). (2015). Über Uns. Retrieved from http://www.uamr.de/ueber-uns/

University Rectors' Conference [Hochschulrektorenkonferenz] (HRK). (2015). *Higher education institutions in figures 2015* [*Hochschulen in Zahlen 2015*]. Retrieved from HRK Web site: https://www.hrk.de/uploads/media/2015-05-13_Final_Hochschulen_in_Zahlen_2015_fuer_Internet.pdf.

University Rectors' Conference [Hochschulrektorenkonferenz] (HRK). (2017a). HRK General Assemby May 9, 2017: *Finanzierung des Hochschulsystems nach 2020: Resolution 22.* Retrieved from HRK Web site: https://www.hrk.de/fileadmin/redaktion/hrk/02-Dokumente/02-01-Beschluesse/Entschliessung_Finanzierung_des_HSSystems_nach_2020__09052017.pdf

University Rectors' Conference [Hochschulrektorenkonferenz] (HRK). (2017b). *University Rectors' Conference: University Financing* [*Hochschulrektorenkonferenz: Hochschulfinanzierung*]. Retrieved from HRK Web site: https://www.hrk.de/en/themes/hochschulsystem/hochschulfinanzierung/

Van der Wende, M. C. (1996). Internationalizing the curriculum in higher education: Report on a OECD/CERI study. *Tertiary Education & Management*, *2*, 186-195. Retrieved from http://dx.doi.org/10.1080/13583883.1996.9966900

Van der Wende, M. C. (1999). An innovation perspective on internationalisation of higher education institutionalisation: The critical phase. *Journal of Studies in International Education*, *3*(1), 3-14. https://doi.org/10.1177/102831539900300102

Van der Wende, M. C. (2001). Internationalisation policies: About new trends and contrasting paradigms. *Higher Education Policy*, *14*(3), 249-259.

Van der Wende, M. C. (2008). Rankings and classifications in higher education: A European perspective. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 23) (pp. 49-71). Dordrecht: Springer Netherlands.

Van der Wende, M. C., Beerkens, E., & Teichler, U. (1999). Internationalisation as a cause for innovation in higher education. In B. Jongbloed, P. Maassen, & G. Neave (Eds.), *From the eye of the storm: Higher education's changing institution* (pp. 65-93). Dordrecht: Springer Netherlands.

Van Der Wende, M. C., & Westerheijden, D. F. (2009). Rankings and classifications: The need for a multidimensional approach. In F. A. van Vught (Ed.), *Mapping the higher education landscape: Towards a European classification in higher education* (pp. 54-71). Dordrecht: Springer Netherlands.

Von Humboldt, W. (2010). Über die innere und äußere Organisation der höheren wissenschaftlichen Anstalten in Berlin. Berlin: Humboldt-Organisation.

Wehrlin, U. (Ed.). (2011). *Universitäten und Hochschulen im Wandel: Veränderungsprozesse, Trends, Umfeldveränderungen, Bologna-Prozess, Folgen des demografischen Wandels im europäischen Hochschulraum*. Munich: Akademische Verlagsgemeinschaft München (AVM).

Weissmann, F. (2005). *Unternehmen steuern mit Controlling: Leitfaden und Toolbox für die Praxis*. Berlin, Heidelberg: Springer-Verlag.

Wildavsky, B. (2010). *The great brain race: How global universities are reshaping the world*. Princeton, NJ: Princeton University Press.

Wilkins, S., & Huisman, J. (2012). The international branch campus as transnational strategy in higher education. *Higher Education*, *64*(5), 627-645.

Williamson, O. E. (1987). *The economic institutions of capitalism: Firms, markets, relational contracting*. New York, NY: Free Press.

Winston, G. C. (1999). Subsidies, hierarchy and peers: The awkward economics of higher education. *The Journal of Economic Perspectives*, *13*(1),13-36.

Wintermantel, M. (2008). Profilbildung und Exzellenzinitiative: Perspektiven der Differenzierung im deutschen Hochschulsystem: In S. Hornbostel, D. Simon & S. Heise (Eds.), *Exzellent Wissenschaft. Das Problem, der Diskurs, das Programm und die Folgen*. Bonn: iFQ. Retrieved from www.research-information.de

Witte, J. (2006). *Change of degrees and degrees of change: Comparing adaptations of European higher education systems in the context of the Bologna Process* (Doctoral dissertation). Center for Higher Education Policy Studies (CHEPS), Netherlands. Retrieved from http://www.academia.edu/download/32340337/Witte_Change_of_degrees_2006.doc on December 30th, 2016

Wulf, J., Blohm, I., Leimeister, J. M., & Brenner, W. (2014). Massive open online courses. *Wirtschaftsinformatik*, *6*(2), 127-130.

Zaheer, A., Gulati, R., & Nohria, N. (2000). Strategic networks. *Strategic Management Journal*, *21*(3), 203.

Zucchella, A., Palamara, G., & Denicolai, S. (2007). The drivers of the early internationalization of the firm. *Journal of World Business*, *42*(3), 268-280. https://doi.org/10.1016/j.jwb.2007.04.008