

What's the Purpose of Higher Education? Proposing Meso-Level Operationalizable Superordinate Strategic Goals for Higher Education

Developing the Higher Education Strategy Model and Metrics (HESM & M)

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Abstract

This conceptual paper looks into the question of what purpose and which superordinate strategic goals can be identified for higher education. Because of the large variety of different purposes and goals in the existing literature, there's a need for integrative models and frameworks that help to manage the complex challenges which higher education is facing in an increasingly complex world. Based on the theoretical perspective of Service Dominant Logic (SD-logic), a holistic higher education strategy system model is presented, allowing higher education decision makers and managers a better understanding and consequently the measurement of strategical higher education goals. Irrespective of the branch of study, the HESM can be used as a decision-making aid in operative tasks regarding curriculum creation and optimization of teaching and learning contents.

Keywords: university leadership, university value management, higher education strategy

1. Introduction

1.1 Higher Education in a Rapidly Changing Environment Facing Increasing Complexity and Uncertainty

The social, economic and political relevance of higher education has become more and more important over recent decades, continues to increase significantly because of, among other things, internationalization and digitization and is in a constant flux with numerous future challenges. The British Council (2002, p. 4), for example, has defined "drivers of higher education demand to 2020," which will reshape the global higher education landscape, as: "A combination of demographic and economic drivers, bilateral trade patterns, and shifts in inbound and outbound student flows linked to growing global competition and rapid expansion of tertiary education capacity ..." In the last few decades, teaching and learning environments have changed dramatically. Feixas and Zellweger (2010, p. 88f.) list the following issues regarding the European higher education area: "Massification of higher education/widening access, changing student characteristics, technological innovations, Bologna-implied challenges and accountability/autonomy issues." Moreover, Siemens (2015, p. 13) argues: "Student profiles are changing as the average entrance age increases, gender balances shift toward females as majority participants ... and the traditional full-time university student is no longer in the majority ...". The challenges and topics that have to be considered by higher education institutions are manifold: These include whether they should be providing lifelong learning, information and communication technology adoption into all levels of education, ubiquitous learning or collaborative learning, an international education as well as an affordable one (Ehlers & Schneckenberg, 2010, p. 3f.): "Higher education is facing new challenges that are influencing the way faculty teach and students learn" (Feixas & Zellweger, 2010, p. 87). In addition, another big challenge for today's higher education is finding more efficient and effective ways for supporting the learning of highly complex knowledge (Clark, Howard, & Early, 2006, p. 27). Universities as "complex

organizations” (Johnstone, 2008, p. 13) undergo a constant transformational process (Maric, 2013, p. 220) and have to deal with this increased complexity intensity, which is caused and intensified by digitization, globalization, demographic change and knowledge economy (ibid.). As shown, universities can be described as complex systems. According to Dörner (1979; 1983), complex systems are characterized by four key features: dynamism, transparency, polytely (multiplicity of objectives), and interconnectedness. These features are interdependent, so that if one of these features is altered, this change in the system has long-range and secondary effects on all other variables within the system. The complexity of a system increases, the more features are available. The more features exist, the more they are interdependent (see Dörner, 2012; Ellert, Germelmann, Schafmeister, & Wawrzinek, 2014). Complex systems do not let themselves to simple answers about what is right or wrong, but call for creative-innovative approaches to prevent failure. Solving complex problems requires that one accepts ambiguity and ignorance about all factors influencing outcomes. Indeed, these influencing factors can be characterized by constant change. Furthermore, increasing complexity leads increasing uncertainty. Hence, establishing resilient attitudes and structures, introducing an error culture, creating confidence, facilitating co-operations, identifying influencing factors or generating models becomes imperative. For managing complexity appropriately, the research area “complex problem solving” (Frensch & Funke, 1995) provides useful hints and several tools, such as, for example, the complexity star, the systemic loop, serpentine picking or the guided representation on the system board (Organisationsentwicklung, 2015, p. 34). Maric (2013, p. 223) analyzes the complexity of problems in managing higher education institutions and moreover emphasizes the necessity

to build a quality management system that respects the philosophy of Knowledge management, and they have to deal with problems of Human Resource management in relation to appearance and development of knowledge workers. Furthermore, the modality of stakeholders indicates the diversity and multidimensional environment that defines and determines a modern organization.

1.2 The Quest for Purpose

Given the multitude of these issues, the question arises, which goals and which purpose higher education actually does have today. The extent literature does not provide an answer to this question, but offers a vast range of approaches, perspectives, opinions and research results. Still, according to Chan, Brown and Ludlow (2014, p. 2) “limited research has explored the primary goals and purposes of higher education and to what extent college students develop skills and attributes ... at the completion of a bachelor’s degree in the 21st century”. They argue that students and higher education institutions have different and multifaceted main foci regarding education goals when getting a bachelor’s degree (Chan, Brown, & Ludlow, 2014, p. 6). While students’ expectations and goals can be characterized as “very instrumental and personal” (Chan, Brown, & Ludlow, 2014, p. 11), higher education facilities are characterized by “highly ideal life- and society-changing consequences” (ibid.). The discussion around higher education goals takes place in an area of conflict consisting of different views on what academia actually is. Kogan and Bleiklie (2007) distinguish between naming universities as former “republics of scholars” increasingly transforming to a “stakeholder organization.” The authors clarify two different ideals concerning the organization and governance of universities in an increasingly globalized world. While in the republic of scholars “leadership and decision-making are based on collegial decisions made by independent scholars,” this is not the case with a stakeholder organization: “Institutional autonomy is considered as a basis for strategic decision-making by leaders who see it as their primary task to satisfy the interests of major stakeholders and where the voice of academics within the institutions is but one among several stakeholders” (p. 1). The transformation from a university as a republic of scholars to a stakeholder organization is characterized by increased international competition (Kamm, 2014, p. 17). This competition is driven by demographic and economic changes (Gibney, 2013), which produce a rapidly growing amount of students with an appropriate demand, reflected in an unbowed, worldwide growth boom of private, profit-orientated higher education institutions. This development is not bound to the Western hemisphere. According to Havergal (2015), for example, the number of private universities in Africa went up from 24 to an “estimated 468” during the period from 1990 to 2007. In general, according to Maric (2013, p. 1), these developments call for an increasingly entrepreneurial management style in higher education institutions. The issue of finding higher education’s purpose becomes even more pressing given estimations that the number of immatriculated students could increase from 178 million in 2010 to 262 million by the year 2025. This will lead to changes in global higher education dynamics (Gibney, 2013). Not everyone sees these kind of developments positively. For example, Bok (2003) looks into the reasons for this paradigm shift in his work “Universities in the Marketplace: The Commercialization of Higher Education.” He shows the development of the American academic landscape and discusses his views on why education and research is increasingly commercialized, and moreover why uni-

versities are more and more becoming profit-oriented organizations that pose a threat to basic academic values. In contrast, Grünwald, Kopper and Pohl (2013, p. 34) see the so-called turbo-studies, which are often associated with the internationally assimilated system of bachelor and master studies, as a valuable contribution to that canon of skills that is also seen as the educational concept's core by the advocates of patriarchal, humanistic educational traditions: the training of basic orientation skills in reality.

1.3 Selected Examples for Different Purposes and Higher Education Goal Perspectives

To gain insights into extant descriptions of higher education goals, a close inspection of the definitions and perspectives laid out in the existing literature is necessary. In the context of the 1998 world declaration on higher education for the twenty-first century, the UNESCO has set out different higher education tasks and duties in 17 articles. In this declaration, UNESCO points to the major problems and challenges for higher education facilities in the new century, for instance

financing, equity of conditions at access into and during the course of studies, improved staff development, skills-based training, enhancement and preservation of quality in teaching, research and services, relevance of programmes, employability of graduates, establishment of efficient co-operation agreements and equitable access to the benefits of international co-operation (UNESCO, 1998).

The declaration continues:

At the same time, higher education is being challenged by new opportunities relating to technologies that are improving the ways in which knowledge can be produced, managed, disseminated, accessed and controlled. Equitable access to these technologies should be ensured at all levels of education systems (UNESCO, 1998).

Today, the digitalization trend finds its most obvious materialization in the advent of massive open online courses (MOOCs). They represent a current trend that attained “tremendous coverage in mainstream media, traditional conferences and journals, and blogs and social media” (Siemens, 2015, p. 13). However, in this context Siemens points out that MOOCs “never were about higher education. They were a response to larger societal needs related to education and training” (ibid.). In fact, MOOCs are by-products of the alpha trends “complexification and digitization of higher education” (ibid.), as well as a reaction to the learning subjects' use requirements in an increasingly rapid, networked world. Referring to the country Great Britain, Schwartz (2013) points out that there is “still no consensus on the purpose of higher education” and does not find this surprising at all, as, there always has been a value collision regarding higher education purposes and goals. At the same time he advocates an “agreed set of social goals” and continues: “The answer is greater social justice. Universities contribute to a just society in two ways: by producing graduates who improve social life and by promoting social mobility.” The National Center for Public Policy and Higher Education (1998) in the United States mentions three primary purposes of higher education:

To promote citizenship ... preparing people to be good human beings, to be good members of families, to be the kind of parents and spouses we ought to be in our families and communities and ... educating people with world-competitive skills.

To give an example from the European context, the Federal Ministry of Education and Research in Germany emphasizes the importance of sustainability in higher education and its development. The Ministry calls for the adoption of the sustainability principle into the higher education development strategy and concept (2004, p. 16). Adding to the idea of sustainability, Bringle and Hatcher (1996, p. 236) develop the idea of universities as institutions actively engaging in co-creating value with students, but also communities as resource integrators: “Virtually all universities are interested in committing their resources to develop effective citizenship among their students, to address complex needs in their communities through the application of knowledge, and to form creative partnerships between the university and the community”. In consideration of higher education goals, Chan, Brown and Ludlow (2014) have carried out an extensive analysis of the North American higher education landscape regarding basic competencies, skills, abilities and the willingness to graduate with a bachelor's degree. Because of the higher education industry's global nature, the analysis's findings are also applicable outside of this specific context. Using critical interpretive synthesis, the researchers have compared institutional perspectives with student perspectives regarding goals and purposes for graduating with a bachelor's degree. In total, there are nine main motives: “Social democratic values and action—civic engagement; advanced intellectual skills; advanced communication skills; interpersonal skills; vocational & employment preparedness; personal life quality enhancement; personal integrity; graduate school education preparedness; and family expecta-

tions/reasons (2014, p. 9)". Furthermore, the results indicate that

higher education institutions have placed heavy emphasis on much larger and grander objectives to do with reforming society and the classic individual cognitive and communicative agendas. In contrast, undergraduate students appear to focus much more on personal economic, family, and personal development goals.

The different goals and purposes on both sides underline the need for integrative models and frameworks that help to manage the complex challenges which universities but also other stakeholders in higher education face.

1.4 Literature Review: Developing the Higher Education Strategy Model and Metrics (HESM & M)

Our conceptual model's theoretical basis is the service-dominant logic (Akaka, Vargo, & Wieland, 2017; Wawrzinek, Ellert, & Germelmann, 2017; Vargo & Lusch, 2016; Chandler & Lusch, 2015). With the use of a service scientific perspective, higher education can be analyzed as a service that "involves multiple processes of interactions among many different actors" (Chandler & Lusch, 2015, p. 6). Furthermore, our conceptual model draws from theoretical findings coming from visualization research (cf. Burkhard, 2007; Ellert, Germelmann, Schafmeister, & Wawrzinek, 2014). In order to reduce a system's complexity and also to simplify its understanding, visualizations are particularly suitable. Because the amount of available information has been increasing steadily for years, working processes have been speeded up and content has been rapidly changing, a systematic exposure to information is an essential factor of success for knowledge workers (Burkhard, 2007, p. 84). Because of this, we have considered findings from the areas of knowledge-, information- and concept-mapping (cf. Lima, 2011; Tergan, 2005), as well as from visualization research during the development of our conceptual model. According to Burkhard (2007, p. 87), the amount of information and consequently the problem of an information overload is enormous. In general, contents are becoming more and more complex and, very often, several persons are involved. Therefore, contents increasingly have to be completed geared to the target group for a better understanding. Visual solutions are helpful in this case. Moreover, this perspective brings together findings from strategic management literature (cf. Hungenberg, 2008; Tabatoni & Barblan, 2000; Porter, 1996), learning psychology (cf. Ellert et al., 2014) and complexity research (cf. Maric, 2013; Dörner, 2012; Clark, Howard, & Early, 2006). Consequently, the model's theoretical framework is interdisciplinary. In pursuance of Holländer (2003, p. 1f.), interdisciplinary research is increasingly demanded by science policy. The author believes that the demand for interdisciplinarity is also a reaction to the deficits of disciplinary research and their contribution to the handling of complex, societal problems. As described under "1.2 The Quest for Purpose", the extant literature does not provide a satisfying answer to the question, which generalizable goals and which purpose higher education actually does have today (cf. for example, Chan, Brown, & Ludlow, 2014; Schwartz, 2013; Kogan & Bleiklie, 2007; UNESCO, 1998). Considering the vast range of opinions (see "1.3 Selected Examples for Different Purposes and Higher Education Goal Perspectives") in the existing literature and recent research foci in the area of higher education, which primarily are set on an operational level, there are hardly papers dealing with this particular issue. These insights clearly show the need for further investigation. Research findings from the above described fields represent the theoretical basis for our strategy model. The consideration and integration of findings from these research areas into the field of higher education allow a new perspective and the construction of a holistic system model for a better understanding and consequently the measurement of strategical higher education goals. Below after "2. Method", the single parts and the connections inside the strategy model are described more specifically under consideration of the particular theory findings. Importantly, we clearly differentiate between strategy and operative tasks. This differentiation allows for the development of metrics that can be used to measure the extent to which the higher education goals have been reached.

This paper does not adopt a normative position on which developments are positive or negative for academia. Instead, this paper proposes a conceptual model that arranges and categorizes existing findings regarding the purpose and goals of higher education. The presented model aims at providing a holistic, strategic orientation aid for higher education decision-makers. Such orientation would facilitate system understanding, strategy making, measurement of strategic goals and the development of suitable operative tasks.

2. Method

There is a qualitative research strategy underlying our strategy model. This research strategy in turn implies a genuine epistemological, constructivist and interpretative position (Moser, 2014, p. 13), which aims at generating theory and constructing hypothesis (Ellert et al., 2014). A qualitative research approach with principles like, for example, openness, reflexivity of object and analysis, as well as explication and flexibility (Lamnek, 2005, p. 19) appears to be suitable for developing a holistic logic out of single parts and also for reconstructing structures that in turn provide the possibility of a quantitative follow-up survey. In qualitative expert interviews within a

workshop situation, with altogether eight experts (defined as someone who possesses comprehensive and area-specific knowledge and skills) and practitioners from the fields of management, higher education, service sciences and psychology, new insights in terms of purposes, goals and values of higher education were able to be gained in order to develop the presented strategy model. The expert interview, which is used, according to Meuser and Nagel (2009, p. 465), inter alia in educational research particularly often, appeared to be a particularly suitable qualitative method for the construction of this conceptual model in this context. The fact that expert interviews are aimed at the generation of area-specific and object theoretical propositions and not at analyzing basic rules of social action, or rather universal constitutive structures, was crucial for choosing this qualitative approach in the form of expert interviews (Meuser & Nagel, 1991, p. 466). Thus, it is possible to appropriately analyze the knowledge in terms of experience rules regarding higher education operations. Furthermore, every single expert was able to provide their expertise and to depict and refine their understanding of the strategy model and relevant connections directly by means of a sequential mapping method. The sequential mapping method results' essence gave rise to the subsequently depicted strategy model and further research questions (see "Research Agenda and Practical Implications").

3. The Higher Education Strategy Model (HESM)

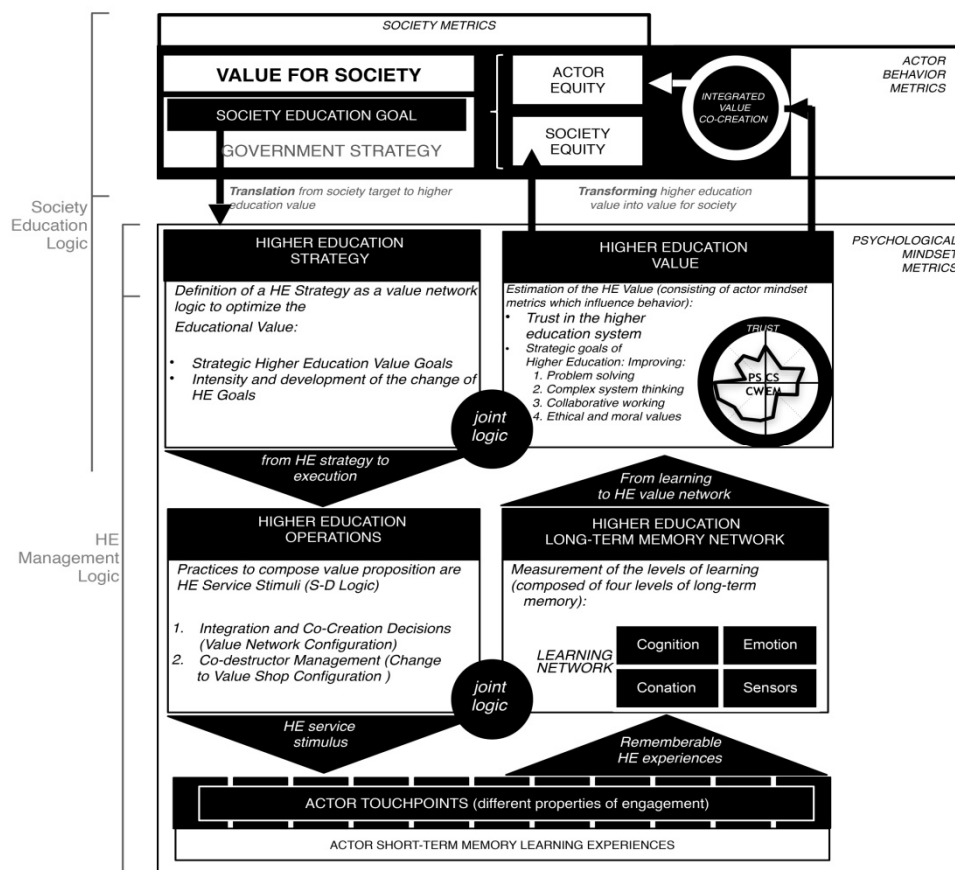


Figure 1. Higher education strategy model

Value for society in a changing environment. The model's upper part represents higher education's value for society in a constantly changing context. This value is generally promoted, demanded and defined by the particular State Department of Education through a government strategy (see for example, Hill, Hoffmann, & Rex, 2005, p. 1ff.). The Irish government, for example, has published a national strategy paper entitled "National Strategy for Higher Education to 2030—Report of the Strategy Group." It says: "This strategy is framed against a range of new challenges that are facing higher education. The capacity of higher education has doubled over the past twenty years and will have to double again over the next twenty" (Department of Education and Skills Ireland, 2011, p. 10). Governments have recognized the importance of higher education promotion and therefore

increasingly invest in it.

Using the example of the USA, Lonanecker (2003) gives the following reasons:

First, the federal government supports and directs two types of activities within higher education where it believes there is a primary federal responsibility: assuring access to postsecondary education and sustaining basic and applied research that is in the national interest. Second, the federal government provides support, generally more modest, in areas where there is a clear federal interest even though it is not primarily a federal responsibility.

Since 2005, the German government has been continuously increasing its investments in education and research. In contrast to almost all other European countries, in which educational investments have simply remained constant, or have even partially shrunk, the German government will invest over 17 billion euros in education until the year 2017 (German Government, 2015). Using another example from China, Yakunin (1990) shows that investing in higher education is paying off: “China began investing seriously in its universities in the mid-1990s, and its position in current league tables demonstrates that its efforts are paying off.” Universities UK (2013) mentions yet another reason why governments have to invest in universities: “Strong universities create jobs, attract investment, and are essential to the future competitiveness ... Skilled graduates are in demand, while jobs for the less qualified are disappearing ... Universities are efficient and deliver an impressive return on public investment.”

Higher education strategy. To attain and meet higher education society goals and benefits at the highest level, universities, as organizations that “are being pushed forward by competitiveness” (Maric, 2013, p. 217), have to implement appropriate strategies with goals that ideally can be measured. At this point it is initially meaningful to highlight what exactly characterizes strategy respectively strategic management and what characteristics it has, because the implementation of strategies is one of strategic management’s main tasks. Very often, strategy is intermixed with operative activities, respectively “operational effectiveness” (Porter, 1996, p. 2) and there is no clear differentiation. While the latter means that activities and tasks like, for example, creation or selling services run better, faster and more smoothly than that of rivals, “strategic positioning attempts to achieve sustainable competitive advantage by preserving what is distinctive ... It means performing different activities from rivals, or performing similar activities in different ways” (ibid., p. 3).

Universities are “learning systems” (Tabatoni & Barblan, 2000, p. 5), in which “strategic management becomes the educating process of change agents, the institutional actors” (ibid.). According to Hungenberg (2008, p. 3), contents, methods and theory perspectives differ in the literature when it comes to strategic management. However, a basic understanding of strategic management can be identified, which is reflected in the following aspects: Such management decisions are strategic that determine or significantly influence the corporate development’s basic direction. The purpose of strategic decisions is to ensure the corporation’s long-term success. Furthermore, strategic decisions try to ensure future success by determining the corporation’s external and internal direction (ibid., p. 4). Additionally, potential for success needs to be established and decisions need to be made from an overall perspective (ibid., p. 5). A holistic understanding of the system, which is provided by our higher education strategy model, is therefore essential for making the right decisions for an uncertain future with multifaceted, complex and often contradictory influencing factors of strategy decisions (ibid., p. 6). Another definition of strategic management is provided by Tabatoni and Barblan (p. 5). The authors state:

It aims at leading, driving and helping people, those inside the organization and those outside ... to focus on the organization’s identity and image, to question its worth in a new environment, to fix its long-term growth, while using its present capacity and fostering its “potential” for development.

Universities are in a highly competitive, international environment and compete for the best students, research funds, reputation and scientific prestige. This is why universities have to orient their strategies increasingly to an international environment. According to Click (2006), international management is defined “as the process through which value is created by managers operating across a national border.” It is especially important to differentiate between individual higher education management strategies and goals in particular organizations (e.g., “an increase in school enrolment at location or campus x”) and general higher education strategies with relevance for society, to which our model relates (e.g., “Which graduate school program with which special training must increasingly be offered in a country?”). Considering our model, the particular university management strategy has to be geared to the higher education strategy that is normally formulated by the state.

Higher education value. The area “Higher Education Value” is intimately connected with the area “Higher Education Strategy” through a joint logic. From our point of view, the area “Higher Education Value” implies the

four most important, general strategic higher education goals. Beneath these four strategic goals, almost all the already mentioned higher education goals and purposes found in the literature can be subsumed. The basic strategic goals are: problem-solving competency, complex system thinking, collaborative working and ethical and moral values. If one considers the above-mentioned definitions of strategic management, like for example, decision-making regarding the influence of an organization's general direction, these four strategic higher education goals act as a kind of compass, affecting the direction for all strategic decision. Furthermore, the four basic strategic higher education goals are so-called key performance indicators, meaning characteristic factors referring to an organization's success or utilized capacity. Their purpose consists of performance measurement and control of processes, projects and divisions. To give an example: When a university wants to determine to what degree the students' problem-solving competencies are being developed, this can be measured by the didactical tool "case study." When the superordinate government strategy dictates a necessary increase in problem-solving competency, this can be compared via the depicted fingerprint and also be optimized and readjusted in the form of operative tasks, such as, for example, an added use of case studies in basic subjects. Taking account of the sustainability postulated by the German Federal Ministry of Education and Research as another example, all four strategic higher education goals can be compared and measured with respect to the superordinate government strategy goal: In what way are universities considering the aspect of sustainability regarding the imparting of problem-solving competency, complex system understanding and thinking, collaborative working as well as ethical and moral values in their curricula? When actual state and target state have been measured and compared to each other, appropriate actions for attaining the superordinate government strategy goals can be taken. Trust as an impact filter serves as a moderator or mediator in the strategic system.

Higher education operations. This area implies findings of the research area service sciences. Within this research area, the service-dominant logic was developed by Vargo and Lusch (2004, 2006, 2008, 2016). Service-dominant logic allows an understanding of value creation in higher education. According to this understanding, higher education is a service, which is "an application of knowledge and skills" (Akaka et al., 2013, p. 3), and creates value collaboratively in a complex network consisting of several actors, such as, for example, teaching staff, students or administrators. All of this happens within the framework of appropriate accommodations and teaching materials. Service-dominant logic deals with the interplay and the dominance of the three value configurations value chain, value network and value shop (see Porter 1985; Stabell & Fjeldstad, 1998, p. 415; Thompson, 1967). In the field of higher education, a value network is predominant whose "logic is based on simultaneously linking customers that generate value by using mediation technology. The vertical and horizontal integration used here and supported by intermediation and co-creation tools keeps up the wanted competitive advantage in the market" (Ellert, Schafmeister, Wawrzinek, & Gassner, 2015, p. 61; Stabell & Fjeldstad, 1998, p. 413). Applying this logic in the context of higher education, it can be deduced that the value generated in this case in a collaborative learning and teaching process through participation of diverse actors is education, respectively teaching the relevant competences in order to achieve the four strategic higher education goals. The more complex a system, the higher is the probability of so-called co-destructors damaging and endangering the value network's reliability. Take the class situation in an overcrowded lecture room as a simple example: There is the high probability of several students raising the acoustic level by constant chatting with their neighbour and consequently influencing other students' concentration and reception of contents in a negative way.

Higher education long-term memory network. The area "Higher Education long-term memory network," which considers the psychology of learning and helps in integrating and assigning strategic goals and derived operative tasks regarding possible learning psychology effects, is logically connected to the area "Higher Education Operations." Learning is a psychological process that can be carried out within the long-term memory by selecting and processing at four levels: cognitive, affective, conative and motoric (see Ellert, Schafmeister, Mueller, Dallwig, & Phellan, 2014). Only when it is understood how information is acquired, processed and stored, is one able to take action and to give impulses that meet the four strategic higher education goals.

Actor touchpoints. This area shows the platform on which, and the frame within which actors create value through co-creation (value configuration value network). This value can either be generated "live" (e.g., all services in the lecture room during attendance courses) or digitally (services in online learning environments, e.g., online courses or MOOCs). Furthermore, certain impulses strike this platform and create memorable higher education experiences that are stored in the long-term brain and thus shall meet the strategic higher education goals. In addition, the actors' engagement can show different properties. Chandler and Lusch (2015, p. 9) define five properties of engagement altogether: temporal connections, relational connections, future disposition, past disposition and present disposition. In addition, the authors point out "that engagement is based on both the connections of an actor and the psychological dispositions of an actor" (ibid.).

Explanation of the cycle. For being able to locate suitable operative tasks for the strategic goals’ implementation, our cycle’s logic follows a certain order, which is explained below. First of all, it has to be mentioned that higher education government strategies are different depending on the country. Nevertheless, we see the strategical goals as similarly important, generalizable and measurable dimensions that can be captured and measured in the form of key figures for all higher education facilities. If, for example, the governmental higher education strategy implies an increase in students’ ethical and moral values regarding sustainability (Higher Education Value), this requirement influences the particular university’s management strategy (Higher Education Strategy), which in turn is geared to the superordinate strategy, which is defined by the government. Subsequently, the logical-thinking guideline fades to the area “Higher Education Long-Term Memory Network,” which in turn is directly linked to the area “Actor touchpoint”, because only by a well-grounded understanding of how and on which platform (live or digital) information and the contents of teaching are stored in the long-term memory, can appropriate operative tasks, which reach the goals for generating an appropriate value for society and stakeholders, finally be defined.

4. Research Agenda and Practical Implications

With our cross-disciplinary approach we were able to develop a strategy model, but we are also aware of the need for future research into the service research areas time, actors and context. Summarized in Figure 2, we outline research questions in each of these areas to provide a research agenda toward a better understanding of the higher education strategy model.

FUTURE RESEARCH AGENDA	Research area TIME	Research area ACTORS	Research area CONTEXT
SOCIETY METRICS	Which KPIs indicating value generation in society in a chronological sequence need to be tracked?	How do the actors of the different scientific disciplines contribute and to what extent are there efficiency differences regarding the strategical goals?	How do the single strategical higher education goals influence the different areas of societal value creation?
STRATEGY METRICS	Which superordinate strategical goals have which effect rate?	How do actors adapt the correlations between the different strategic goals?	Are there possible co-constructors that can be identified within the context of strategic goals?
OPERATIONS METRICS	Which psychological-pedagogical services are chronologically particularly effective in order to achieve the superordinate, strategical goals?	How do actors transform long-term brain learning into strategical values?	Which processes are particularly effective in order to create service innovation in the field of higher education?

Figure 2. Research implications

The higher education strategy model provides a management tool for decision-makers in the field of academic policy and in higher education facilities. It facilitates a holistic understanding of the system and the measurement of strategic goals and multidisciplinary qualifications in a more and more complex, international and digital higher education environment. The four strategic goals, which are problem-solving, complex system thinking, collaborative working and ethical and moral values, are an attempt to bring together the diverse, partially very different competencies, goals and conceptions regarding higher education in the existing literature. Schaper, Schlömer and Paechter (2013), for example, name a central requirement in the context of the European academic reform of the Bologna process. It says that students should, in addition to professional-scientific competencies, acquire skills that enable them to adopt and adapt their academic knowledge to applied operational areas. Moreover, students should be able to reflect and enhance existing knowledge. The authors also stress that academic studies should contribute to the facilitation of interdisciplinary and multifunctional qualifications that create usa-

ble key competencies in career terms (e.g., skills in adopting self-organized knowledge or in working together with others collaboratively). By presenting our strategy model, these requested key competencies are determined in the form of strategic goals that have to be attained by every higher education facility. Irrespective of the branch of study, this model can be used as a decision-making aid in operative tasks regarding curriculum creation and optimization of teaching and learning contents. This allows organizations to remain competitive and at the same time to live up to the particular government strategy.

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