Building blocks for customer-centric service ecosystems

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Abstract

Purpose – This research presents and empirically tests a framework that contains the building blocks of customer-centric service ecosystems. This framework discerns between organizational and institutional building blocks.

Design/methodology/approach – To test the proposed framework, the current research uses two case studies in the pharmaceutical industry. This industry is particularly well suited for the current research as pharmaceutical companies are actively moving towards service ecosystems to co-create better patient value. At the same time, the industry is characterized by an elaborate set of institutions that enable or constrain collaboration and interaction.

Findings – This paper contributes to the service literature by examining how two large pharmaceutical companies build and manage a customer-centric service ecosystem. The authors argue that organizations should pro-actively manage both organizational and institutional building blocks in order to effectively create customer-centric service ecosystems.

Research limitations – The investigation is limited to two case studies.

Practical implications – This research provides managerial guidelines with respect to building and managing customer-centric service ecosystems.

Social implications – By gaining insight into building and managing customer-centric service ecosystems, pharmaceutical companies can use such ecosystems more effectively in order to co-create better patient value which ultimately contributes to patients' well-being and quality of life.

Originality/value – This paper is the first case-based investigation of the role of organizational and institutional building blocks in customer-centric service ecosystems.

Keywords – Service-dominant logic, Service ecosystems, Customer centricity, Institutions

Paper type – Case study

Introduction

Being customer-centric has been recognized as the best way to develop close, profitable, and enduring relationships with customers, which ultimately leads to better organizational performance. Customer centricity focuses on serving the customer and creating customer value instead of on producing output and selling products (Shah *et al*., 2006). The transformation from product centricity to customer centricity is thus in line with the transformation from goods-dominant logic to service-dominant logic (Vargo and Lusch, 2004).

Recent advances in service research (e.g., Vargo and Lusch, 2016) as well as changes within the business context (Ostrom *et al.*, 2015) recognize that organizations should shift from focusing on a dyadic management of customer relationships to understanding and managing their role in service ecosystems. A service ecosystem is "a relatively self-contained, self-adjusting system of resource-integrating actors connected by shared institutional arrangements and mutual value creation through service exchange" (Vargo and Lusch, 2016, p. 10).

Such a service ecosystem approach broadens the scope of customer centricity by taking a network instead of a dyadic perspective on customer relationships and by including customers as active and collaborative players (or actors) in this network (Ng *et al.*, 2011). Hence, the boundaries between the organization and the customer become blurry and all actors (including customers) co-create value within the ecosystem (Payne *et al.*, 2008; Sharma and Conduit, 2016). Specifically, value co-creation is driven by the collaborative efforts of and interactions between the various actors in the ecosystem (Vargo *et al*., 2015). However, these collaborations and interactions are influenced by institutions, which can be defined as "humanly devised rules, norms, and beliefs that enable and constrain action and make social life predictable and meaningful" (Vargo and Lusch, 2016, p. 11). Institutions can be

considered as “the rules of the game” and can come in the form of regulations and laws, informal social norms, conventions, symbols, practices, routines or other guidelines for thinking, evaluating, or behaving (Vargo and Lusch, 2016).

Although service ecosystems and institutions have been extensively conceptualized and described in recent literature and are deemed important for business practice (Ostrom *et al.*, 2015; Vargo and Lusch, 2016), there is little documented evidence on alternative approaches taken by companies to building ecosystems and managing the key institutions within these ecosystems. In light of this research gap, the purpose of this paper is to develop and empirically test (using a multiple case study approach) a framework containing the organizational and institutional building blocks of a customer-centric service ecosystem. This research therefore combines insights from the customer centricity literature with recent studies on service ecosystems and institutions. The proposed framework is graphically presented in Figure 1.

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The next section provides the theoretical background of customer centricity and service ecosystems. It also describes the primary organizational and institutional building blocks of customer-centric service ecosystems. Next, the case study method is discussed and the two case studies are presented. The subsequent section discusses the findings of the two case studies. The paper concludes with a discussion of findings and limitations.

Theoretical background

From customer centricity to customer-centric service ecosystems

The notion of customer centricity is not new. More than sixty years ago, Peter Drucker was one of the first to emphasize customer centricity by stating: "it is the customer who determines what a business is, what it produces, and whether it will prosper" (Drucker, 1954). A few years later, Theodore Levitt (1960) declared that firms should not focus on their products but on satisfying their customers' needs. It was not until the 1990s, however, that customer centricity gained momentum and customer-centric concepts such as market orientation (Kohli and Jaworski, 1990; Narver and Slater, 1990), customer orientation (Deshpandé *et al.*, 1993), and the market-driven organization (Day, 1999) were developed. The development of such concepts not only allowed and encouraged organizations to better understand their customers' needs and wants, but also resulted in superior organizational performance (Shah *et al.*, 2006). The transformation from product to customer centricity was also embedded in paradigm shifts such as the shift from goods-dominant to service-dominant (S-D) logic (Vargo and Lusch, 2004). Although each of these concepts and paradigms has its own focus and definition, they all rely on the true essence of customer centricity which "lies not in how to sell products but rather on creating value for the customer, and in the process creating value for the firm; in other words, customer centricity is concerned with the process of dual value creation" (Shah *et al.*, 2006, p. 115).

Embedded in S-D logic, customer centricity should be considered from a service system perspective and thus extended to allow for service ecosystems. Ng *et al.* (2011, p. 16) effectively describe this extension as follows:

> Despite subsuming previous literature on customer centricity, the new concept of value co-creation in service systems extends the ideas further with two major implications for the design, delivery, evaluation and purchase of service. The first is the notion that customers are an integral

> part of the service systems and they contribute the resources accessible to themselves into the system to achieve the outcomes just as firms deploy resources into the service system to deliver the service. […] Second, as an extension of the first, is that firm's competency to deliver on a service, and perhaps its potential source of competitive advantage, includes the customer "as the source of competence", and the firm has to find ways to harness the competency (or improve the lack of competency) of the customer in the service system.

In a customer-centric service ecosystem, value co-creation is thus driven by the interactions and collaborations between various actors, including customers (Vargo *et al.*, 2015). These interactions and collaborations are enabled or constrained by institutions, which can be considered as "the rules of the game" and can come in the form of regulations and laws, informal social norms, conventions, symbols, practices, routines or other guidelines for thinking, evaluating, or behaving (Vargo and Lusch, 2016).

This research therefore examines the components that are essential for building a customer-centric service ecosystem. We refer to these components as building blocks and discern between organizational building blocks, which relate to elements internal to the company that should be managed for building a customer-centric ecosystem, and institutional building blocks, which relate to the institutions that can enable or constrain interactions and collaborations between the company and the other actors in the ecosystem.

Organizational building blocks

To describe the organizational building blocks this study starts from the conceptual work of Shah *et al.* (2006) who mention four building blocks of a customer-centric organization: culture, structure, processes, and metrics. Although their work contributes to our understanding of the organizational building blocks, they focus on customer centricity at an internal, organizational level, not at a service ecosystem level. Consequently, the present

research extends Shah *et al.*'s conceptualization of the organizational building blocks by not only focusing on customer centricity, but also including the service ecosystem perspective.

Culture

Organizational culture can be defined as "the pattern of shared values and beliefs that help individuals understand organizational functioning and thus provides them with norms for behavior in the firm" (Deshpandé and Webster, 1989, p.4). Based on the work of Shah *et al.* (2006) we can identify three values and beliefs of a customer-centric culture: (i) every decision begins with the customer; (ii) employees are customer advocates; (iii) marketing is an investment, not a cost.

Although the aforementioned values and beliefs provide essential information about the degree of customer centricity of an organizational culture, they are not sufficient for describing and supporting a service ecosystem approach since they do not acknowledge the interconnectedness of all actors in the service ecosystem. To this end, a recent study by Sharma and Conduit (2016) investigated an organizational culture that supports and facilitates value co-creation. Specifically, they describe three organizational values and beliefs of a co-creative culture: (i) mutual respect, (ii) empowerment, and (iii) mutual trust. Mutual respect encompasses the belief that the other actor has valuable resources as well as the demonstrated appreciation for these resources. This relates to the notion that each actor must feel that the other actor appreciates its contribution before it is prepared to contribute. Empowerment relates to the organization's ability to engage customers to contribute and take responsibility for the value outcome (Sharma and Conduit, 2016). Mutual trust can be defined as having confidence in the other actor's reliability and integrity (Morgan and Hunt, 1994). Hence, mutual trust involves the belief shared by different actors that the other actors will not deliberately hamper their own value outcomes (Sharma and Conduit, 2016). The significance

of trust as a keystone for collaborations and knowledge-sharing interactions has been emphasized by several researchers (e.g., Das and Teng, 1998; De Man and Roijakkers, 2009; Geyskens *et al.*, 1998; Gounaris, 2005; Krishnan *et al.*, 2016).

Structure

Structure involves the anatomy of an organization (Dalton *et al.*, 1980) and thus relates to the functions and departments of the organization. According to Shah *et al.* (2006), a customer-centric organization integrates and aligns its functional activities and departments to deliver superior customer value. The organization is thus not organized around functional silos and functions or departments are not based on products but on customers. For example, customer-centric organizations have Chief Customer Officers and Customer Relationship Managers instead of Product Managers and Sales Teams.

If an organization wants to build or manage a service ecosystem, the structure must be adapted further to allow for effective co-creation with other actors. This implies that co-creative organizations have a formal structure in place (specific functions or departments) for collaborating and interacting with other actors (Kale *et al.*, 2001; Leroi-Werelds *et al.*, forthcoming). Organizations placing collaboration high on their agenda often organize partner management as a separate organizational function or department. Philips Electronics, for example, has a department that centralizes partner management at the corporate level. This department acts as an advisor to business units aiming to engage in a partnership by supporting them from partner selection to partner evaluation (Kale *et al.*, 2009; Roijakkers *et al.*, 2014).

Processes

Five generic processes are essential for a customer-centric organization. These organizational-level processes include (i) a strategy development process that focuses on the organization's business strategy as well as its customer strategy; (ii) a value creation process that creates value for the organization and for its customers; (iii) a multichannel integration process that manages customer relationships via different (but integrated) channels in order to create an outstanding customer experience and present a consistent image of the company to the customer; (iv) an information management process to collect, collate, and use customer data, and (v) a performance assessment process to ensure the organization's strategic aims are reached (Payne and Frow, 2005).

Although the work of Payne and Frow (2005) provides essential information on what customer-centric processes should look like, these processes should be adapted or expanded to allow for co-creative behaviors in the ecosystem. Specifically, the aforementioned processes should include collaboration and interaction with other actors (Mortara *et al.*, 2009), including the customer. This implies that (i) the strategy process should include collaboration with customers as part of the business and customer strategy; (ii) the value creation process should emphasize value co-creation; (iii) the multichannel integration process should allow for and encourage two-way communications with customers; (iv) the information management process should not passively collect information, but actively engage with customers and learn from them; (v) the performance assessment process should include not only customer-centric performance measures, but also collaborative measures. The latter will be discussed in the next paragraph.

Metrics

Metrics refer to a variety of measures organizations can use to assess their performance. Organizations often develop scorecards and dashboards with Key Performance Indicators (KPIs). As KPIs are based on the specific objectives of the organization, a customer-centric organization therefore needs corresponding customer-centric KPIs. Using such KPIs is important for two reasons. First, customer-centric KPIs can encourage employees to focus on creating customer value and serving customers instead of on selling products to customers even when they do not need them. Secondly, adequate KPIs can help managers determine the financial implications of their customer-centric decision-making (Shah *et al.*, 2006) and track the impact of their investments. The latter is consistent with the perspective that marketing is not a cost but an investment (Strandvik *et al*., 2014) and the notion of Return on Marketing (Rust *et al.*, 2004).

Customer centricity can be measured by means of hard metrics, such as customer lifetime value and customer equity (both expressed in financial terms) or soft metrics, such as customer satisfaction and product quality (based on customer perceptions). A frequently used KPI of customer-centric organizations is the Net Promotor Score (NPS). Although there is some criticism and counterevidence regarding the relationship between NPS and organizational growth (Keiningham *et al.*, 2007), it remains a popular and valuable metric for evaluating customer centricity. The NPS is especially treasured by business practitioners since it is easy to understand, very well suited to integrate in a marketing dashboard, straightforward to track in real-time and it provides options to benchmark.

To effectively build and manage a customer-centric service ecosystem, additional KPIs should be used. Potential hard metrics include the number of collaborative projects and co-created ideas, the number of employees involved in collaborative projects, the intensity and duration of collaborative projects, cost and time savings from collaboration as well as the

revenues generated by the collaboration (Chesbrough, 2004; Cravens *et al.*, 2000; Dyer *et al.*, 2001; Michelino *et al.*, 2015). In a similar vein, potential soft metrics include the satisfaction of the collaboration as perceived by the various actors, the level of trust that has developed among actors, and the actors' intention to work together again in the future (Gulati, 1995; Tamoschus *et al.*, 2015). For example, Fujitsu Services, an information technology and equipment services company, evaluates the company's effectiveness within its service ecosystem by means of the number of co-created ideas that are effectively implemented (hard metric) as well as customers' willingness to collaborate with Fujitsu Services again in the future (soft metric).

Institutional building blocks

When going beyond an organizational level and focusing on customer-centric service ecosystems, institutional building blocks should be taken into account since institutions can enable or constrain collaboration and interaction with other actors in the service ecosystem. Institutions can thus be considered as either building blocks (when enabling) or roadblocks (when constraining) of customer-centric service ecosystems. In S-D logic, institutions are defined as "humanly devised rules, norms, and beliefs that enable and constrain action and make social life predictable and meaningful" (Vargo and Lusch, 2016, p. 11). So if institutions are considered the "rules of the game", the actors in the ecosystem are the players (Vargo and Lusch, 2016).

The basic function of institutions is to effectively reduce thinking by providing information and acting as signposts (Edquist and Johnson, 1997). Specifically, institutions are employed to create order and reduce uncertainty (North, 1991), while their durability stems from the fact that they can usefully create stable expectations of the behavior of others. Hence, institutions and their constituent parts provide cognitive schema, normative guidance,

and rules that constrain and empower social behavior (Scott, 2008). On the flipside, because institutions simplify rational thinking, there is a potential risk that actors "act without thinking," which can result in ineffective dogmas, principles, beliefs, ideologies, and dominant logics (Vargo and Lusch, 2016). This implies that the appropriateness of institutions should be reevaluated and even challenged based on the context, but also over time. This is actually what Vargo and Lusch did in 2004 when challenging goods-dominant logic and introducing service-dominant logic.

In service ecosystems, institutions do not only act as cognitive shortcuts, but are, in fact, instrumental in the cooperation and coordination activities of the actors (including customers) in the ecosystem. Furthermore, institutions (such as property rights and contracts) can manage conflicts between these actors (Vargo and Lusch, 2016). Given our focus on customer-centric service ecosystems, this study concentrates on the institutions that influence the interactions and collaborations between the focal organization and the customer for the purpose of co-creating value.

Research context

To test our framework (see Figure 1), two pharmaceutical companies were selected for case study research. The pharmaceutical industry represents an interesting research context because of the following reasons. First, companies active in the pharmaceutical industry are currently transforming from product-centric drug manufacturers to customer-centric healthcare providers. Second, viewing healthcare and pharmaceutical companies through a customer-centric service ecosystem lens can help create better patient experiences (Joiner and Lusch, 2016) and health outcomes (Frow *et al.*, 2016) since healthcare involves a broad range of actors collaborating to create better patient well-being (McColl-Kennedy *et al.*, 2012). Third, healthcare is characterized by a variety of institutions that can positively or negatively

affect the functioning of service ecosystems. Finally, service ecosystems in healthcare are receiving increased attention in the service literature (McColl-Kennedy *et al.*, 2012; Sharma and Conduit, 2016), but empirical research on their building blocks is currently lacking. Given the research context, the terms "patient centricity" and "patient-centric service ecosystem" will be used when describing our findings.

The need for patient-centric service ecosystems in healthcare

Traditionally, healthcare providers – including pharmaceutical companies – viewed patients as passive recipients of complex healthcare services (Frow *et al*., 2016; McColl-Kennedy *et al.*, 2012; Sharma and Conduit, 2016). Recently, a paradigm shift in healthcare has been going on that emphasizes the active role of patients in the co-creation of their own healthcare experience. This shift is well documented by Joiner and Lusch (2016) who state that healthcare providers and patients are increasingly experiencing, creating, and learning together; that is, they are embracing S-D logic. This implies that healthcare providers need to modify their internal organization as well as optimize their external relations in order to effectively co-create value with various stakeholders, including patients (Sharma and Conduit, 2016; Tamoschus *et al.*, 2015). Figure 2 presents an overview of the actors that can be part of patient-centric service ecosystems as well as how these actors link (directly or indirectly) to patients.

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Pharmaceutical companies – which are part of healthcare ecosystems – increasingly collaborate and interact with other actors to co-create valuable health solutions. Recognizing that their performance depends on durable, mutually beneficial relationships with patients,

pharmaceutical companies are creating ecosystems focused on collaborations and interactions with a variety of partners, including pharmaceutical associations, universities, biotech companies, caregivers (physicians, pharmacists, nurses, family and friends of patients), patient associations, payers and policy makers (local, regional, and national), external research organizations, supra-national bodies such as the World Health Organization (Bianchi *et al.*, 2011; Kramer and Pfitzer, 2016) as well as patients (Lowe *et al.*, 2016). However, despite increasing efforts to incorporate patient perspectives into their strategy and activities, pharmaceutical companies still have some work to do to effectively co-create value with them (Lowe *et al.*, 2016). Part of this work relates to the impact of institutions, which is the topic of the next section.

Institutions influencing value co-creation in service ecosystems

This section outlines some relevant institutions for the pharmaceutical industry. This list is not intended to be exhaustive, but the focus is on exemplifying how institutions can affect collaborations and interactions between service ecosystem actors.

The first form of institutions influencing value co-creation within patient-centric service ecosystems is legislation. According to the World Health Organization's report (Fefer, 2012) legislation is necessary because (i) healthcare concerns the whole population; (ii) a lot of actors are involved (patients, healthcare providers, manufacturers, sales people); (iii) abuse or misuse can lead to serious consequences such as injury or even death; (iv) informal controls are insufficient, and; (v) the patient cannot easily evaluate the safety, efficacy, or quality of drugs. Given that legislation is mostly country-specific, national approaches and laws can differ widely which complicates matters for pharmaceutical companies. National legislation also evolves over time and in recent years there has been a trend toward the globalization of pharmaceutical laws. Specifically, given the complex balance between national legislation

and global trade, several initiatives have been undertaken to promote the harmonization of legislation. For instance, in 1995, the European Medicines Agency (EMA) was founded to coordinate regulatory activities of EU member states. Specifically, the EMA controls the scientific evaluation, supervision, and safety monitoring of drugs developed by pharmaceutical companies for use in the EU.

Two examples of legislation that especially impact pharmaceutical companies' interactions and collaborations with patients relate to (1) direct-to-consumer pharmaceutical advertising and (2) the processing of health data. Pharmaceutical companies cannot advertise their medicines in the same way as manufacturers of regular consumer products do. Although some exaggeration in advertising can be tolerated for consumer products, this is not the case for medicines. As a result, most countries have a clause in their law to regulate this issue (Fefer, 2012). For instance, most European countries forbid advertising prescription medicines directly to patients, whereas it is allowed in the US since 1985. Although there are some pros and cons for direct-to-consumer pharmaceutical advertising (Ventola *et al.,* 2011), the problem these days is that it is almost impossible to control since a lot of this advertising happens via the Internet. Hence, the need to reevaluate institutions and their appropriateness at regular intervals becomes an imperative. One recent example is Botox, the popular wrinkle-reducing drug, which is increasingly finding off label uses as a treatment for severely cold hands, lockjaw, depression, Parkinson's disease symptoms, and more. You can easily buy Botox injections online these days. However, a careful balancing of risks and benefits is necessary for each intended use, before and after approval (Sifferlin, 2017).

Another important part of the legislation that impacts collaboration and interaction within an ecosystem concerns the protection of health data. In 2016, the EU Parliament approved the General Data Protection Regulation (GDPR), which has been considered the most important change in data privacy regulation in 20 years. The GDPR intends to strengthen and unify data

protection for individuals within the EU, and will give people more control over their personal data. The GDPR will be applied from 25 May 2018 after a two-year transition period. This implies that companies – including pharmaceutical companies – should take appropriate measures in the meanwhile. For pharmaceutical companies, this institutional change has several consequences. First, the new regulation will form a single, pan-European law for data protection, replacing the current inconsistent assortment of national laws. Second, the GDPR applies to all companies offering goods or services to EU citizens, or processing personal data of EU citizens regardless of the company's location. This implies that companies based outside of the EU will have to comply to the same rules. Third, in large organizations a Data Protection Officer should be appointed, who has expert knowledge of the GDPR and monitors compliance with this new regulation. Fourth, the conditions for consent have been strengthened, which, for instance, impacts pharmaceutical companies' clinical trials, as well as their interactions with patients. Hence, pharmaceutical companies should become familiar with these new data protection rules in the following years. The GDPR will unavoidably impose itself on pharmaceutical companies, as well as their academic and technological partners using health data. Overall, pharmaceutical organizations processing health data will need to review their existing policies, procedures, and practices to guarantee compliance with these new rules.

A second institution that impacts collaboration and interaction in the pharmaceutical industry relates to intellectual property (IP) rights. Given that the pharmaceutical industry is heavily based on R&D, IP rights play an important role in the value co-creation process. On the one hand, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organization has been often debated in recent years given its impact on access to medicines and public health. On the other hand, pharmaceutical companies invest large amounts of money in R&D and the protection of their IP rights is

important for promoting innovation in this industry. Furthermore, agreements on IP rights and IP management are of critical importance when pharmaceutical companies collaborate with other companies, especially when taking an ecosystem approach (Leten *et al.*, 2013).

Furthermore, practices, which can be defined as "routinized activities" (Vargo and Lusch, 2016), can affect interactions and collaborations in patient-centric service ecosystems. Recent research (Makary and Daniel, 2016), for example, has uncovered that the failure to include medical error as a cause of death on death certificates in the US is creating a severe burden on society. Given that a list of the most frequent causes of death informs public awareness and sets national research priorities, failing to acknowledge the true figures (i.e., how many patients are victims of mistakes, communication breakdowns, overdoses, fragmented care, closed insurance networks, preventable complications, or unnecessary treatments) blocks reform in healthcare ecosystems and reduces general patient well-being. Another example of an ongoing practice that can affect efficient value co-creation is pharmaceutical companies' continued face-to-face engagement with professionals despite a general growing trend towards digitization (Chilukuri *et al.*, 2014).

Another institution that can enable or constrain co-creation is language. When interacting and collaborating, it is important to use a language all actors can understand, especially in a rather technical context such as the pharmaceutical industry. To increase the participation of patients and patient organizations in the service ecosystem, several initiatives have been taken to create this common language. For instance, the European Patients' Academy on Therapeutic Innovation (EUPATI) is a consortium led by the European Patients' Forum, with partners from patient organizations, universities, and non-profit organizations, along with a number of pharmaceutical companies. EUPATI focuses on educating and training patients so they can contribute to the development of new drugs as well as contribute to the patient-friendliness of public information.

Finally, general beliefs regarding pharmaceutical companies can affect potential interactions and collaborations in the ecosystem. To establish valuable interactions and relationships, trust is a key factor. However, trust is a challenging topic for pharma, since the reputation of the industry has been damaged by its business focus (i.e., moneymaking instead of healthcare), dubious marketing practices, pricing issues, and numerous regulatory investigations (Kessel, 2014). The 2016 Edelman trust barometer, which is based on an online survey in 28 countries and a total of more than 33,000 respondents, indicates that in general only 53% of the population trust pharmaceutical companies. Paul Simms, Chairman of eyeforpharma, says that pharmaceutical companies should stop trying so hard to communicate the message of being trustworthy, but instead should open up to the general public (Simms, 2016):

> Effectively, what we need are more 'naked' pharma companies. Our corporate communications departments need to rely less on the exterior veneer they apply, usually on instruction from top executives who say that the right image is about control. Instead, we must open up – allow their employees to demonstrate, on a human scale, their own passion for our industry and the power it has to transform lives (and already has).

Case study selection

Case selection was based on purposive sampling (Gentles *et al.*, 2015; Yin, 2014), ensuring that information-rich cases yielding in-depth insights of patient-centric service ecosystems were used in the investigation. Three criteria were used to select suitable cases. First, the companies should be active in the pharmaceutical industry. Second, the case studies should be drawn from firms that are investing significant resources in setting up patient-centric service ecosystems. In other words, firms that are actively focusing on the research issue of interest. Third, the selected pharmaceutical companies should focus on supporting patients with

chronic diseases because it allows them to develop trustful, lasting relationships with patients and caregivers.

Based on the aforementioned criteria we searched for cases and ultimately gained approval to report on the patient-centric service ecosystem approach of two large pharmaceutical companies: UCB and Novo Nordisk. These two companies meet all the aforementioned criteria. Specifically, both companies are actively investing in creating patient-centric service ecosystems in the pharmaceutical industry in order to effectively serve the long-term needs of their patients.

Data were collected from various sources. First, a total of eleven semi-structured interviews were conducted with key informants at UCB and Novo Nordisk during the period July to December 2016. The interviews were analyzed based on an open coding approach (Strauss and Corbin, 1998) using NVivo 10, and provided crucial insights regarding the culture, structure, processes, metrics, and the management of institutions. These insights were complemented by the companies' websites, annual reports and press releases. Second, we collected additional input from the websites of international organizations (United Nations, World Health Organization, US Food & Drug Administration, European Federation of Pharmaceutical Industries and Associations), communities for senior pharmaceutical executives (EyeForPharma), patient associations and platforms (Patients Like Me, Pistoia Alliance, Esperity), and independent rating agencies (The Reputations Institute). In the next section, we present the cases of UCB and Novo Nordisk with a particular focus on how these large pharmaceutical companies manage the organizational and institutional building blocks of their patient-centric service ecosystems.

Building a patient-centric service ecosystem at UCB

UCB is a multinational pharmaceutical company, founded in 1928 and headquartered in Brussels, and focuses on creating value for patients living with neurology and immunology conditions. Specifically, UCB's therapy areas include epilepsy, Parkinson's disease, restless legs syndrome, osteoporosis, lupus, Crohn's disease and several types of arthritis. Employing more than 7,500 people around the world and bearing the slogan "Inspired by patients, driven by science", UCB Pharma aims to provide better health outcomes to millions of chronic disease sufferers.

UCB's transition from product centricity to patient centricity and a patient-centric service ecosystem was triggered by changes in the organization's landscape, including increased competition, the return of the patient into the pharmaceutical industry's mindset, the development of a new lexicon for innovation in the industry, as well as the internal need to instill a new sense of purpose. UCB recognized that changes were taking place in healthcare and that the company should evolve accordingly to stay true to its vision and ambition: "transforming lives of people living with severe diseases". In 2015, Jean-Christophe Tellier became the company's CEO. He is a true promoter of the patient-focused mindset and instilled a Patient Value Strategy at UCB. He believes that the company can only create patient value by better understanding the specifics of the disease and by listening to the actual needs of patients in order to improve their quality of life. This strategy involves an increased focus on value co-creation with patients and other stakeholders.

Organizational building blocks

The foundation of UCB's patient-centric culture is the Patient Value Strategy, which was developed and instilled by CEO Jean-Christophe Tellier in 2015. The Patient Value Strategy comprises four elements that reflect the patient centricity of the firm. First, employees should

distinguish signals (queues) among the noise (abundance of data, for example) (“From Noise to Signal”). Second, employees should acknowledge how their tasks (routines) can positively impact a patient and create value (“From Task To Value”). Third, employees should strive for an organization that gives space for development, execution, and idea generation and does so in a consistent manner (“Space With Consistency”). Finally, employees should support teamwork, build empathy, and exhibit generosity (“Helpfulness and Generosity”). Leadership commitment was an essential part of this cultural shift. As mentioned by one of UCB’s employees:

> I think with the change where Jean-Christophe came in and took over after Roch Doliveux, we had a big culture shift from more the numbers, the facts, the processes, to a truly patient focused organization.

Complementing these initial patient-centric guidelines is a set of values to nurture the culture of co-creation. UCB’s vision emphasizes the importance of listening to patients as well as engaging them with the ultimate purpose to deliver the right care for the right patient. It also underlines UCB’s belief in partnerships and an open approach to deal with the contemporary challenges in healthcare. Finally, UCB’s strategy explicitly shows appreciation for “patient groups who provide valuable services to patient communities and understand what matters to people living with severe diseases”. For example, UCB invests in engaging patients through events such as Hack Epilepsy, where multiple actors including developers, designers, digital experts, and patients imagined new ways of applying digital technologies to improve the lives of the larger epilepsy community. UCB also emphasizes mutual trust in the relationship with patients, by valuing the right solutions more than market share or a dominant position:

> We do not aspire to gain a huge market share or to take the market or to have a dominant position, but to provide the right solution to the right patient and [to] be recognized as a true partner and a value generating partner.

UCB invested in its organizational structure by redrawing its organizational chart to create structures for better interaction and engagement with patients and other stakeholders. Specifically, the organization created Patient Value Units, Patient Value Practices, Patient Value Operations and Patient Value Functions. In parallel with such efforts, an alliance department was put in place to manage strategic relationships that would ultimately result in better health outcomes for patients. The act of breaking down old barriers and silos in which "marketing was doing marketing, sales and commercial were doing sales, and medical was doing medical", however, was not an easy task. In fact, the reorganization also led to double work and less clarity with regard to how each function co-creates value.

> The organization is very scattered and sometimes people in the Missions do something I am working on.

UCB also invested in their processes. First, the Patient Value Strategy, which is the result of UCB's strategy development process but also relates to its value creation process was described in the previous section. It emphasizes collaboration with patients to create value for the patient as well as the organization. UCB's CEO Jean-Christophe Tellier explains:

> Now, our challenge is to take patient centricity - or what I call patient value - to the next level. It involves integrating the patient into every step of our activity chain, from research to marketing and sales, to drive better solutions and meet the patients' diverse needs more effectively.

Furthermore, UCB invested in improving its multichannel integration processes to encourage two-way information sharing and also designed an information management process that facilitates learning. However, these processes are mainly directed at healthcare professionals and not directly at patients. For instance, UCB's Head of Omnichannel Operations explains how the multichannel integration and information management processes of their Neureca platform work:

> Neureca is a website that we have in five languages for the biggest five countries, that has medical information on there, mainly non-branded. It also has other functionalities like a quiz, like product information in some countries […] To make all that happen, different components need to be in place. You need to build a website, you need to make sure doctors can register and opt into that website, you need to make sure that's connected to the back-end so that [sales representatives] can actually see who is connected and who is not connected so they can prepare their talks and take that into account. You also need to organize the webinars and have a tool with which you can reach 1-200 people in a call, and you need to send out all of these newsletter to all these people that are still opted in. Then you do a report on all of that and see: who is going to the website, who visited the webinar, who is opening and clicking on the newsletters, who is opting out, why, and kind of get some insight our of all of that.

Although Neureca is directed at healthcare professionals, UCB also invests in facilitating two-way communications with patients. For instance, in the UK, UCB launched UCBCares™ which is a 24/7 helpline for healthcare professionals as well as patients to address their questions or concerns about UCB products. Furthermore, feedback from these interactions is used to innovate and improve their products and treatments.

Finally, UCB also considers several metrics based on how they might best reflect the success (or failure) of ecosystem-level value co-creation. In terms of hard measures, UCB reports on the results of profit sharing agreements as well as on the intensity and duration of collaborations in its annual reports. In terms of soft metrics, the organization reports on the results of sentiment analysis as well on several engagement metrics. Furthermore, UCB created some performance metrics in collaboration with patients:

> We had to pioneer how to set up a dashboard, which measures value for patients. (…) What we actually did was that we worked with patients to discern what they see as valuable.

Institutional building blocks

To manage institutions impacting collaboration and interaction, UCB has set up a series of initiatives, both internally and in collaboration with stakeholders. First, as direct advertising to patients is permitted in the US, but forbidden in Europe, UCB expanded its outreach by giving careful consideration to national laws, regulations, and guidelines, while at the same time reinforcing the benefits of providing patients with access to resources and patient communities such as Epilepsy Advocate [I], Crohn's and Me [II]. However, UCB is still struggling with what they are allowed to do. One respondent stated the following:

> From my personal view, the biggest barrier is our internal understanding of what we are allowed and what we are not allowed to do. What we also came across in the EOS workshop was that there are actually people there – and these are people from the field – that would say we are not allowed to speak to patients. And that is not true. It's the way we speak to patients that we have to be careful about. It's not that we cannot speak to them, it's that we have to be careful in the way we speak to them; the "what" and also the "how".

UCB will be subject to the General Data Protection Regulation that will be applied in 2018. This will have implications for data-driven research, clinical studies, and personal data as a whole. In 2016 UCB already adopted a new set of privacy compliance standards called Binding Corporate Rules. These provide guidelines to ensure legal obligations and public expectations are met.

UCB not only complies to these legal institutions, but also tries to change them when possible. For instance, UCB was involved in research initiatives intended to create better health value for patients as well as a better policy. For example, the Report Cards Project, winner of the eyeforpharma's Most Valuable Patient Initiative or Service Award in 2016, was a response to the high hospitalizations of epilepsy patients and the fact that 30% of epilepsy patients were not in control of their seizures. For this project, UCB partnered with the Epilepsy Foundation, a US-based patient organization. The project not only led to the reduction of hospitalization rates for epilepsy patients but also provided policymakers with insights into the states where legislative change was needed most (Chandler, 2015).

Regarding IP management, UCB is gradually transforming from a closed company, that mainly gained IP by its own R&D or by buying other companies, to a more open and collaborative company. For instance, UCB started collaborations with Harvard University and Oxford University to jointly develop new treatments for serious diseases. Furthermore, UCB and Dermira, a private company focusing on the development and commercialization of new therapies in dermatology, entered into a strategic collaboration to broaden patient access to Cimzia® (certolizumab pegol). By helping more patients suffering from psoriasis (a common, chronic, relapsing, immune-mediated, inflammatory disorder with primary involvement of the skin) gain access to the drug, the IP agreement paved the way for improved care. UCB is also slowly embracing open innovation to find new and improved medicines and treatments for its patients. A good example is the Technology Platform Access Program (TPAP), which allows

partners to access UCB's state-of-the-art technology and collaborate with the R&D department to discover new drugs.

UCB does not only want to manage practices, but also wants to change them in order to effectively interact and collaborate with other actors to create better patient value. As mentioned before, pharmaceutical companies mostly interact face-to-face with healthcare professionals. Given the multitude of channels available to interact and collaborate in a more efficient as well as more effective way, UCB offers various possibilities such as telephone calls, newsletters, webinars and the Neureca platform which was discussed in the previous section.

With respect to language, UCB is a member of the European Patients' Academy on Therapeutic Innovation (EUPATI) discussed earlier. Furthermore, UCB educates healthcare professionals, patients and caregivers through social media and online platforms such as the aforementioned Neureca platform.

Finally, UCB tries to enhance general beliefs regarding its trustworthiness and reputation by living and breathing its Patient Value Strategy. Some examples include marking the International Epilepsy Day on February 13, 2017; communicating about clinical trials on their website, posting videos on their website and social media showing patient and employee stories. However, UCB still has some work to do to build trust. In the words of one respondent:

> Our industry is not known as a very trustworthy industry. We are overcoming obstacles that were not necessarily created by us.

Building a patient-centric service ecosystem at Novo Nordisk

Novo Nordisk is a large multinational pharmaceutical company, established in 1923 and headquartered in Bagsværd (Denmark), and employing approximately 42,600 people in

various research centers around the world. As their slogan “Changing diabetes” suggests, its key products include diabetes care medications and devices but also treatments in therapy areas such as hemophilia, growth hormone disorders, obesity, and hormone replacement. Patient centricity and co-creation have always been central values in Novo Nordisk’s philosophy and operations. One of the respondents explains the foundation of the company:

> The story is about a Danish couple, husband and wife. She, Marie Krogh, had Type 1 diabetes and they were in the US travelling around talking about insulin and diabetes and came across the two Canadian scientists that were able to develop the first insulin used for treatment. They agreed that they would take this back to Scandinavia under two conditions. One was that they made it accessible to everyone and two, that any new science and discovery around insulin and around diabetes would be shared broadly in the academic, medical community. Already back then the founding of Novo Nordisk was based on these two principles as a condition.

Organizational building blocks

Novo Nordisk patient-centric and co-creative culture is especially stimulated by the The Novo Nordisk Way. Before 2011, it was called the Novo Nordisk Way of Management: it was the way managers at Novo Nordisk were expected to act. The idea was that the display of these values by managers would trickle down to the others in the company. But in 2011, this top-down approach became a bottom-up approach:

> In 2011 our CEO Lars Rebien Sørensen spent a year and a half visiting nearly every single affiliate production site office in Novo Nordisk trying to understand what the company culture is at Novo Nordisk. Based on a lot of his travelling as well as other people working on this, they came up with the Novo Nordisk Way. This is a 10 essential values system which was launched and communicated; made active inside the organization. Now this is something that

> is very much embedded. The essential no. 1 is patient centricity ["We create value by having a patient centered business approach"].

The Novo Nordisk Way consists of two different parts. The first part is about the vision, and includes Novo Nordisk's ambition to strengthen its leadership in diabetes, its focus on developing medicines and making them accessible to patients, its aspiration to make a difference, its focus on quality as well as business ethics, and its business philosophy that balances financial, social and environmental responsibilities (which is called the Triple Bottom Line). The second part of The Novo Nordisk Way describes the essentials that guide daily employee behavior and is summarizes in 10 key statements. The most relevant statements for our study include (11) "We create value by having a patient-centered business approach" and (5) "We build and maintain good relationships with our stakeholders". The co-creative nature of Novo Nordisk's culture is indicated by the following statements about collaborating with patients based on respect, empowerment, and trust.

> We build up relationships with patient leaders and we work closely with them on different projects where they have different roles. They can be our advisors, they can be reviewers of the things we do, they can have their own projects where they seek our sponsorship, they can also be guiding us at different workshops, etc.

> The core thing is that there is trust and that they understand that we are completely transparent in everything we do. You cannot work with a patient organization with a one-sided agenda.

In terms of structure, Novo Nordisk supports value co-creation by having specific departments and functions in place. The Corporate Stakeholder Engagement Department is responsible for engaging with stakeholders, such as NGOS, the National Health Service,

healthcare professionals but also with patients. Furthermore, the Patient Relations Department focusses on involving patients' key opinion leaders and patient associations in the research and development process.

Regarding processes, Novo Nordisk's strategy development process is based on the aforementioned Novo Nordisk Way, which emphasizes patient centricity as well as stakeholder relationships. Novo Nordisk also encourages engaging and co-creating with patients in their value creation process.

> An example of that is work that we have done to create these disease experience expert panels within therapy areas: Type 1, type 2 diabetes, hemophilia, human growth disorder, to actually bring them earlier into the R&D process; to see if the clinical benefits of a certain product are going to be meeting the needs of the patient, who will end up taking them 2-4-8 years down the line when the product goes to market.

In terms of multichannel processes, Novo Nordisk champions two-way communication with patients and other stakeholders. For instance, one of the respondents described his job at the Corporate Stakeholder Engagement Department as follows:

> Trying to target stakeholders who we find very important to have good relations with, and trying to identify either their information needs or some tools that can provide them some utility. One of those groups is patients. I primarily engage with them via digital channels: social media accounts, web-based accounts. In that process, engaging with people with diabetes directly, through user testing, through interviews, through secondary sources within Novo Nordisk, who engage with them for anthropological or advisory board interactions. Just better trying to understand where are the barriers and where are the pain points to improving patient outcomes. Not just medical outcomes but also psycho-social outcomes.

Furthermore, Novo Nordisk developed DAWN (Diabetes Attitudes, Wishes, and Needs) [III], a study that intents to reduce the burden of diabetes by focusing not only patients, but also other stakeholders such as family members, nurses, dieticians, and specialists by interviewing them about the psychosocial challenges of the disease. DAWN also provides dialogue tools which helps healthcare professionals with a dialogue-based approach to educate and treat people with diabetes. Another example of refining multichannel as well as information management processes is its recent collaboration with IBM Watson Health to create diabetes solutions built on the Watson Health Cloud (Weber, 2015). The agreement combines Novo Nordisk's understanding of diabetes with IBM's expertise in cognitive computing. Commenting on the agreement, Jakob Riis, executive vice president of Novo Nordisk said:

> Working with ambitious partners like IBM Watson Health helps us explore the opportunities presented by an increasingly digitalized healthcare system. We aim to leverage our combined capabilities to improve the lives of people with diabetes by making the management of the condition more simple, effective and measurable.

Novo Nordisk uses both hard and soft measures to evaluate performance. The hard metrics focus on sales as well as on the number of patients that reach out to and rely on Novo Nordisk's diabetes products. Soft measures capture patients' and other stakeholders' attitudes towards the organization and company reputation is measured annually using the RepTrak® methodology. However, Novo Nordisk also evaluates performance by means of their values, or the so-called Novo Nordisk Way:

> What is different at Novo Nordisk is that there is a certain accountability by virtue of the fact that we measure our actions against these values. As I told you before, I am a Communication

> Manager for a department called Business Assurance and there we have a group of extremely senior people called the Facilitators. Once every 2 years they go out to each unit and they measure how the unit has performed against the Novo Nordisk Way. That, I think, is very unusual. I think that the fact that we go out and ask: "Are you walking the talk? Well, show me where! How? With whom? What do they say about you?" I think that is a very helpful barometer, a temperature check of how we are living against our values.

Another performance measure used by Novo Nordisk is the Access to Medicine Index (ATMI), which evaluates research-based pharmaceutical companies on how they make their medicines and diagnostics accessible in low- and middle-income countries.

Institutional building blocks

Novo Nordisk has worked on multiple fronts and has engaged with multiple stakeholders such as caregivers, patient associations, independent research organizations, and payers to manage existing institutions.

Novo Nordisk has centralized systems in place that track and audit interactions with patients. Since Novo Nordisk will be subject to the General Data Protection Regulation that will be applied in 2018, they should update these systems based on the GDPR:

> And then certainly, when we do engage with patients, for example what I do in my work with user testing, there are also very strict rules around can we keep any data or personal information related to that patient? Can the agency, if we need to use one, can they keep that information? How long can we keep that information for? Where can we store it? etc.

Regarding directly communicating with customers, Novo Nordisk has to adapt global activities to local regulations, which can hamper collaboration and interaction:

> In some countries the affiliate works very closely with diabetes educators, working directly with patients in helping them be able to manage a chronic disease. In other countries, we are not able to get that close and then the work might be through the patient organization in that market. Even online there are different rules and regulations, what we can and cannot say in terms of patient information and patient materials. Or at least everything that we do in global has to be approved locally before it can actually be used.

According to Novo Nordisk, patents are important to stimulate R&D since it is essential to guarantee return on investment. However, in line with the Novo Nordisk Way and The Triple Bottom Line, the company neither engages in patenting activities in least developed low-income countries, nor enforces patents in these countries. Furthermore, the company recognizes that healthcare emergencies can require exceptions to IP rights. Novo Nordisk actively pursues an open and collaborative approach for their R&D. They are actively looking for research collaborations (academia and biotech companies), licensing, co-development as well as global commercialization partnerships. Furthermore, Novo Nordisk collaborates with various partners to improve society as a whole. The Cities Changing Diabetes is founded by Novo Nordisk, University College London and the Steno Diabetes Center, and builds on private-public partnerships between business, policy makers, architects, healthcare professionals, academics, and other stakeholders. All actors work together to create cities, which help people to live more healthy and diabetes patients to lead a better life.

Managing and changing practices is also important for building and sustaining Novo Nordisk's patient-centric service ecosystem. For instance, the practice of compensating patients for their involvement in clinical trials or professionals for being part of advisory boards is carefully tracked in order to avoid conflicts. Novo Nordisk also wants to change ongoing practices, for instance, regarding pharma's effect on climate change. In 2011, Novo

Nordisk partnered with five other companies (AstraZeneca, Baxter, GlaxoSmithKline, Johnson & Johnson, Pfizer) as well as The National Health Service Sustainable Development Unit (a unit supporting the national healthcare system in England). A year later the group published the first international guidelines for calculating the carbon footprint of pharmaceuticals and medical devices.

With respect to language, Novo Nordisk is a member of the European Patients' Academy on Therapeutic Innovation (EUPATI) discussed earlier. Furthermore, Novo Nordisk addresses potential language issues through continuous education. The organization recognizes, for example, that if left unaddressed, the difference in professionalism between itself and other stakeholders could make interaction and collaboration difficult. In this context, Novo Nordisk established and sponsors the Haemophilia Academy, an annual educational event run by international experts in haematology (i.e., a branch of medicine focusing on blood disorders). The aim of this program is to educate and support young haematologists. Given the scarcity of hemophilia specialists in developing countries, the initiative is paving the way for improved patient outcomes.

Regarding general beliefs, Novo Nordisk is listed among the top 3 pharmaceutical companies according to the 2016 RepTrak ranking. This ranking identifies the most reputable pharma companies among the UK general public. The high ranking of Novo Nordisk is mainly stimulated by its so-called Triple Bottom Line business principle. This implies that the company combines financial, environmental and societal responsibility. The company actively promotes responsible and ethical business practices (see previous example on the carbon footprint). For instance, in 2002, Novo Nordisk founded the World Diabetes Foundation (WDF) as an independent non-profit organization. The WDF supports prevention and treatment of diabetes in low- and middle-income countries through funding of sustainable projects. Similar to UCB, however, Novo Nordisk still struggles with the industry's image:

> Another aspect would be the sentiment of the patients towards pharma which is: they have mixed feelings because patients think large pharma organizations are there to keep them unhealthy and restrict their access to medicine and then of course there is the other feeling where patients trust the organization to deliver the best possible solution and to give them better health outcomes.

Conclusions, limitations, and further research

With rich available conceptualization, yet limited qualitative or quantitative evidence, on alternative approaches taken by companies to building service ecosystems and managing the key institutions within these ecosystems, this case-based study helps increase our understanding of S-D logic and its lexicon. Specifically, the current research combines insights from prior conceptual work on customer centricity with more recent theories on service ecosystems and institutions to conduct a qualitative study of the organizational and institutional building blocks of patient-centric service ecosystems set up by two pharmaceutical companies: UCB and Novo Nordisk.

This study provides various insights into the organizational and institutional building blocks of a customer-centric service ecosystem. First, organizational culture, structure, processes and metrics should allow for and encourage patient centricity and co-creation. Although the companies followed different trajectories, with UCB having a more top-down and Novo Nordisk a more “embedded” approach to patient centricity and collaboration, there are similarities in how they see patients. For instance, they both have a culture stimulating patient-centric and collaborative behavior and a structure with designated functions for collaborating with patients and other stakeholders.

Second, the findings reveal that in the pharmaceutical industry is home to several institutions that can enable or constrain collaborations and interactions between actors in the ecosystem. Several examples of legislation, IP rights, practices, language and general beliefs were discussed. While this list is not intended to be exhaustive, the focus of this research is on exemplifying how institutions can affect collaborations and interactions between service ecosystem actors.

Third, our findings indicate that, although organizational building blocks are mainly built from within the organization these are also influenced by institutions. At UCB, for instance, many employees still believe that they cannot talk to patients directly. This belief results from the legislation concerning direct-to-consumer pharmaceutical advertising. Another example concerns the multichannel integration as well as the information management processes. Both companies are actively developing and integrating several channels to communicate (also in a two-directional way) with healthcare professionals. However, given contemporary laws about advertising and data processing, UCB is a little bit reluctant to set up multichannel integration processes directly directed at patients. For Novo Nordisk, whose business mainly focuses on the US, the direct interaction with US-patients is less regulated and they can more easily contact patients via various channels including social media.

Fourth, our findings verify the role of context as an important influencer of service ecosystems (Frow *et al.*, 2016) since institutions can be very context-specific. For example, in Europe pharmaceutical companies cannot advertise prescription medicines directly to patients, whereas this is legal in the US. Hence, organizations should realize that a service ecosystem cannot just be transferred from one country to another without well-informed modifications (Barile *et al.*, 2016).

Fifth, the results reveal the importance of institutional change (Vargo *et al.*, 2015). Some institutions are changed by other actors, such as the government. For instance, on 14 April

2016, the EU Parliament approved the General Data Protection Regulation (GDPR) which is "designed to harmonize data privacy laws across Europe, to protect and empower all EU citizens data privacy and to reshape the way organizations across the region approach data privacy" [IV]. Although the GDPR will be enforced from 25 May 2018, companies should take the necessary preparations to comply with it. For pharmaceutical companies, this will have implications for data-driven research, clinical studies, and personal data as a whole. The GDPR will unavoidably impose itself on pharmaceutical companies, as well as their academic and technological partners using health data. Hence, they should become familiar with these new data protection rules and need to review their existing policies, procedures, and practices to guarantee compliance with this institutional change.

However, some institutional changes can be initiated by organizations themselves. This is in line with Barile *et al*. (2016, p. 665) who state that: "some institutions outlive their usefulness, such that they become barriers to the viability of a service system". The challenge is then to act as an institutional entrepreneur that alters these institutions and (re)shapes the service ecosystem (Barile *et al.*, 2016). For instance, UCB wants to change ongoing practices concerning how to interact with healthcare professionals. Traditionally, these interactions happen in person (face-to-face). However, this type of interaction is not efficient (it takes a lot of time to meet every healthcare professional), but also not effective (e.g., a lot of information is provided in a short term). Hence, to change these practices, UCB set up the Neureca platform. This platform includes a website with medical information, a quiz and product information, but also a newsletter and several webinars.

Managerial and social implications

Our research builds on the notion expressed by Joiner and Lusch (2016) that viewing healthcare through a service ecosystem lens is valuable in terms of optimizing health

outcomes for patients. In fact, the case companies aim to create better patient experiences by carefully scrutinizing and adapting their cultures, structures, processes, metrics, and managing the institutions governing relations with stakeholders to accommodate mutual value creation. Insights into how internal and external factors help or hinder the transition towards collaboration within patient-centric service ecosystems is crucial for companies that are progressing on the path towards value co-creation (Frow *et al.*, 2016). The current research, documenting the paths of two large pharmaceutical companies in this respect, generates these kinds of insights.

Furthermore, while our research strengthens and extends important findings regarding the internal organizational building blocks of customer centricity (Shah *et al.*, 2006), we find an equally important role for institutional building blocks of patient-centric service ecosystems. In fact, the case companies actively manage several institutions such as laws, IP agreements, informal agreements, ongoing practices, and language. They carefully evaluate these institutions and assess whether they are (still) suited for the purpose at hand; if not, they attempt to change them when possible.

Limitations and future research

Although this research attempts to provide a deeper understanding of customer-centric ecosystems and institutions, a number of limitations and further research opportunities exist. First, further case study research needs to be undertaken to examine our framework in different industrial contexts where service ecosystem building is considered to be important for the optimization of customer outcomes.

Second, this research focused on the most relevant institutions for the pharmaceutical industry. However, this list was not intended to be exhaustive, given that our focus was to exemplify how institutions can affect collaborations and interactions between service

ecosystem actors. However, developing an exhaustive list or typology of institutions could help researchers to have a more holistic view on the different forms of institutions.

Third, a promising avenue of further research is to undertake quantitative studies of the role of both organizational and institutional building blocks of customer-centric service ecosystems. While the details of institutions are context-specific, general lessons may be drawn from studying how companies manage different categories of institutions across sectors of industry. Scales could be developed for each building block enabling researchers to assess the maturity of large numbers of companies on different sub-components possibly linking this maturity to the ability of the company to generate better value propositions for customers with the help of its ecosystem partners.

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Notes

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