Building blocks for customer-centric service ecosystems

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Abstract
This research paper presents and empirically tests a framework containing the building blocks of customer-centric service ecosystems in healthcare. The latter is a particularly fertile ground for this type of investigation 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. As the findings from our two case studies suggest, organizations should pro-actively manage both organizational (culture, structure, processes, metrics) and institutional building blocks (institutions, “rules of the game”), in order to effectively create customer-centric service ecosystems. By gaining insight into the key aspects of building and managing customer-centric service ecosystems, pharmaceutical companies can streamline their activity and co-create better patient value, which ultimately contributes to patients’ wellbeing and quality of life.

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Introduction

Being customer-centric has been recognized as the best way to develop close, profitable, and enduring relationships with customers. At its core, customer centricity refers to serving the customer and creating customer value rather than producing output and selling products (Shah et al., 2006). Customer-centricity also aligns with the axioms of service-dominant logic (Vargo and Lusch, 2004) and views the customer as the sole creator of value.

Today, firms in various industries increasingly understand the importance of abandoning product orientation (internal focus) in favour of a more open, service orientation (external focus). Companies with a service focus assist their customers in “getting jobs done” and by doing so build life-long relations with them. Moreover, companies embracing this mind-set gain know-how for subsequent innovation efforts (Christensen et al., 2007). While switching from a product to a customer focus, companies also move away from viewing the firm as the source of value creation, to seeing the ecosystem of partners around the firm as the engine for progress and innovation (Kramer and Pfitzer, 2016).

To effectively work in ecosystems, firms need to re-organize their internal culture, structure, processes and metrics so as to more effectively serve their partners (including customers) (Shah et al., 2006). In other words, the key internal (R&D) competencies, critical to successful new product development, need to be complemented by relational capabilities for managing partner relations. At the same time, companies need to recognise and manage the industry-specific institutions that affect ecosystem collaboration. Institutions are “humanly devised rules, norms, and beliefs that enable and constrain action and make social life predictable and meaningful” (Vargo and Lusch, 2016: 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 the institutions within them have been extensively conceptualized and described in the literature (Ostrom et al., 2015; Vargo and Lusch, 2016), there is little documented evidence on alternative approaches taken by companies to build ecosystems and manage collaborative arrangements. In different research fields – including open innovation and marketing/service research – scholars have thus called for more ecosystem-level studies (Barile et al., 2016; Bogers and West, 2017; Autio and Thomas, 2014) with the hope of elucidating industry-specific mechanisms for value creation. Some questions that still remain unanswered include: how do (service) ecosystems assemble, how do they evolve and what are the institutions and institutional arrangements that allow service ecosystems to hold together and function (Vargo and Lusch, 2017).

In an attempt to close some of these gaps, the present study develops and empirically tests a framework containing the organizational and institutional building blocks of a patient-centric service ecosystem (see figure 1). We start by providing the necessary theoretical background on customer centricity and service ecosystems. Next, the method is discussed and the two case studies from the pharmaceutical industry are presented. Finally, we detail our findings and discuss limitations.

For the purpose of the study, we define ecosystems as “relatively self-contained, self-adjusting systems of resource-integrating actors connected by shared institutional arrangements and mutual value creation through service exchange” (Vargo and Lusch, 2016: 10).

**Theoretical background**

*Customer centricity and ecosystems – a multi-disciplinary perspective*
In the open innovation literature, researchers have just begun to see the need (and potential) of studying value creation at the ecosystem level (Adner and Kapoor, 2010). From this perspective, customers are viewed as an important source of input to innovation as well as partners in joint value creation (alongside other external actors). Similarly, open innovation researchers have pointed out the need for companies to re-organize their internal organizations to optimally engage in ecosystems, e.g. create a collaborative and open culture, develop metrics to measure the effectiveness of ecosystem management, etc. (Chesbrough et al., 2014).

A similar trend can be seen in the service research literature (Barile et al., 2016), albeit with a different focus. Whereas in innovation management the firm is viewed as the creator of value, service research/ marketing suggests that value is created by the customers themselves using input from the firm. Also, in a customer-centric service ecosystem, value co-creation is 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 (Vargo and Lusch, 2016).

Given these important nuances, the service ecosystem – as opposed to the innovation ecosystem – lens becomes the adequate tool to study patient-centric ecosystem building in two large pharmaceutical companies.

The present study therefore examines the components that are essential for building patient-centric service ecosystem and discerns between organizational building blocks, or elements internal to the organization, and institutional building blocks, or elements which relate to the institutions that either enable or constrain interactions and collaborations between the organization and other ecosystem actors.

To illustrate the organizational building blocks this study starts from the conceptual work of Shah et al. (2006) and extends it to account for ecosystems and co-creation. In this
way, the prerequisites for a customer-centric culture, structure, processes and metrics are enriched to become the prerequisites of a well functioning customer-centric ecosystem.

**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: 4). According to Shah et al. (2006) three values define a customer-centric culture. These are: every decision begins with the customer; employees are customer advocates; and marketing is an investment, not a cost. Sharma and Conduit (2016), add to the latter and note that an organizational culture that supports and facilitates value co-creation, also includes: mutual respect; empowerment, and mutual trust. The unique importance of trust in collaborations and knowledge-sharing interactions has also been emphasized by several researchers including: Das and Teng (1998), De Man and Roijakkers (2009), and Krishnan et al. (2016).

**Structure**

Structure involves the anatomy of an organization (Dalton et al., 1980) and relates to the existing functions and departments. According to Shah et al. (2006), a customer-centric organization integrates and aligns its functional activities and departments to deliver superior customer value. For example, customer-centric organizations have Chief Customer Officers and Customer Relationship Managers instead of Product Managers and Sales Teams. To co-create in ecosystems, organizations must further adapt their structures to allow for effective collaboration with other actors, including the customer (Leroi-Werelds et al., 2017).

**Processes**
According to Payne and Frow (2005), five generic processes are essential for a customer-centric organization. To reflect the needs of co-creation, however, these processes should be adapted or expanded. Specifically, an organization should foster processes that support collaboration and interaction with other actors (Mortara et al., 2009), including the customer. This implies that: (1) the strategy process should include collaboration with customers as part of the business and customer strategy; (2) the value creation process should emphasize value co-creation; (3) the multichannel integration process should allow for and encourage two-way communications with customers; (4) the information management process should not passively collect information, but actively engage with customers and learn from them; and (5) the performance assessment process should include not only customer-centric performance measures, but also collaborative measures. The latter will be discussed in the next section.

**Metrics**

Metrics refer to a variety of measures organizations can use to assess their performance. 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). 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).

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).

**Institutions**

Alongside the four organizational building blocks, institutional building blocks also play a key role in the functioning of an ecosystem. 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) and can simultaneously be enabling or constraining. Hence, if institutions are 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). 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). Furthermore, institutions such as property rights and contracts can manage conflicts between entities (Vargo and Lusch, 2016).

The institutions influencing value co-creation processes are highly context dependent. In the pharmaceutical industry, typical institutions include, but are not limited to: (1) legislation – e.g., direct-to-consumer advertising or processing of health data; (2) intellectual property (IP) rights – e.g., the Agreement on Trade-Related Aspects of Intellectual Property
Rights (TRIPS) of the World Trade Organization; (3) practices – e.g. pharmaceutical companies’ continued face-to-face engagement with professionals despite a general growing trend towards digitization (Chilukuri et al., 2014); (4) language – e.g., the European Patients’ Academy on Therapeutic Innovation (EUPATI) and their efforts to develop a glossary of terms; and (5) general beliefs – e.g., the Edelman trust barometer and actors’ sentiment towards pharmaceutical companies.

**Piecing the building blocks together**

To build effective patient-centric ecosystems, pharmaceutical companies should focus on a number of building blocks. That is, they should re-organize their culture, structure, processes, and metrics in order to optimally build ecosystems, manage partner relations, and prepare for joint value creation with partners. This internal re-organization, however, is not sufficient. Firms also need to (learn how to) manage institutions or the rules, norms, and beliefs governing relations with ecosystem partners to engage in effective joint value creation.

In this study, we analyse laws, regulations, guidelines, informal agreements, intellectual property rights, on-going practices, language, general beliefs, informal social roles, etc. in the pharmaceutical industry and the manner in which the two case study firms manage these institutions.

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**Research context**

To test our framework, we selected two large companies in the pharmaceutical industry: UCB Pharma and Novo Nordisk. The primary data for the study were collected by means of eleven semi-structured interviews, whereas the secondary data originated from international
organizations, specialized magazines, communities for senior pharmaceutical executives, patient associations, patient platforms, and independent rating agencies. All data were analyzed using an open coding approach (Strauss and Corbin, 1998) via NVivo 10.

The pharmaceutical industry represents a unique research context for three 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). 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), whereas empirical research on their building blocks is lacking.

Given the research context, the terms “patient centricity” and “patient-centric service ecosystem” will be used when describing our findings.

Findings

**UCB Pharma's transformation**

UCB is a multinational pharmaceutical company, founded in 1928 and headquartered in Brussels. Its main focus is on creating value for patients living with neurology and immunology conditions. 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.

With respect to managing the organizational building blocks, UCB addressed culture and structure first, but also emphasized processes and metrics. 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. For example, UCB invested in engaging patients through events such as Hack Epilepsy, where multiple actors including developers, designers and digital experts imagined new ways of applying digital technologies to improve the lives of the larger epilepsy community. Next, UCB invested in its organizational structure by redrawing its organizational chart to facilitate 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.

UCB also invested in its processes and metrics. For example, the Patient Value Strategy was operationalized so as to create value both for the patient, as well as the organization. Furthermore, UCB invested in improving its multichannel integration processes to encourage two-way information sharing, and designed information management processes to facilitate learning. However, these processes are mainly directed at healthcare professionals and not directly at patients (the Neureca® platform). In terms of metrics, UCB considered hard measures such as profit sharing agreements and the intensity and duration of collaborations; soft measures included mainly engagement metrics.

To manage the institutional building blocks, UCB 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 and Crohn’s and Me. Similarly, 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. UCB not only complies with the existing 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 (Report Cards Project).

Regarding IP management, UCB gradually transformed 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. UCB has also slowly embraced 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.

Finally, UCB does not only want to manage practices, but also wants to change them in order to effectively interact and collaborate. Hence, the variety of channels to reach patients and stakeholders including: direct helplines, newsletters, online communities, webinars etc. With respect to language, UCB is a member of the European Patients’ Academy on Therapeutic Innovation (EUPATI). Finally, UCB tries to enhance general beliefs regarding its trustworthiness and reputation by living and breathing its Patient Value Strategy. 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”
**Novo Nordisk’s transformation**

Novo Nordisk is a large multinational pharmaceutical company, established in 1923 and headquartered in Bagsværð (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.

With respect to managing the organizational building blocks, Novo Nordisk stressed culture and processes in particular, but also optimized its internal structures and developed new co-creation metrics. To the former, Novo Nordisk’s patient-centric and co-creative culture was guided by the “The Novo Nordisk Way, or the ten essentials for daily employee behavior – e.g. “We build and maintain good relationships with our stakeholders”. Not surprisingly, the processes built on this philosophy and emphasized patient centricity and stakeholder relationships. For example, DAWN (Diabetes Attitudes, Wishes, and Needs) was a study and process whose aim was 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 that help healthcare professionals approach, educate and treat people with diabetes.

In terms of structure, Novo Nordisk supported value co-creation by having specific departments and functions in place. The Corporate Stakeholder Engagement Department, for example, was responsible for engaging with stakeholders, such as NGOs, the National Health Service, healthcare professionals but also patients. Furthermore, the Patient Relations Department focused on involving patients’ key opinion leaders and patient associations in the research and development process. Finally, Novo Nordisk used both hard and soft measures
to evaluate its co-creation performance at the ecosystem level. The hard metrics focused on sales as well as on the number of patients that reach out to and rely on Novo Nordisk’s insulin products. Soft measures captured patients’ and other stakeholders’ attitudes towards the organization and company reputation is measured annually using the RepTrak® methodology. Another performance measure used by Novo Nordisk is the Access to Medicine Index (ATMI).

To manage the institutional building blocks, Novo Nordisk worked on multiple fronts. In terms of legislation, for example, the company used centralized systems to audit interactions with patients and understand whether employees were using the principles of the Novo Nordisk Way correctly. At the same time, legislation regarding direct communication with patients was respected by adapting global activities to local regulations.

Patents were also seen as an important means of guaranteeing 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. 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.

With respect to language, Novo Nordisk is also a member of the European Patients’ Academy on Therapeutic Innovation (EUPATI) discussed earlier. Furthermore, Novo Nordisk addresses potential language issues through continuous education. To the latter, Novo Nordisk established and sponsored the Haemophilia Academy, an annual educational event run by international experts in haematology.

Regarding general beliefs, Novo Nordisk is listed among the top 3 pharmaceutical companies according to the 2016 RepTrak ranking. The company actively promotes
responsible and ethical business practices (Product Carbon Footprint). Also, in 2002, Novo Nordisk founded the World Diabetes Foundation (WDF) as an independent non-profit organization.

**Conclusions and limitations**

*Theoretical contributions*

With rich available conceptualization, yet limited qualitative or quantitative evidence on how companies build and manage their patient-centric ecosystems, this case-based study has helped fill existing theoretical gaps. As such, this study provides five key insights into the organizational and institutional building blocks.

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.

Second, 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.

Third, although organizational building blocks are mainly built from within the organization these are also influenced by institutions.

Fourth, 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 simply 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). While some institutions are changed by other ecosystem actors – e.g., on 14 April 2016, the EU Parliament approved the General Data Protection Regulation (GDPR), other institutional changes can be initiated by organizations themselves.

Managerial and social implications

This study 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 study 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

Our study has three important limitations. First, further case study research needs to be undertaken to examine our framework in other industrial contexts where service ecosystem building is considered to be important for the optimization of customer outcomes. Second, this study has focused on the most relevant institutions for the pharmaceutical industry. However, this list was not intended to be exhaustive. 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.
References


Figure 1. The organizational and institutional building blocks of patient-centric ecosystems