

Health care ecosystem: some evidence from the International Consortium for Health Outcomes Measurement (ICHOM)

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Abstract

Purpose. Health care is currently undergoing a profound revolution that has put the patient-centered approach at the core of health outcome creation, considering co-creation fundamental for increasing value. This vision arises from Service Dominant Logic that looks at the co-creation process as a dynamic resources' integration between actors, linked through a value proposition in a dense relationships' network. Consequently, the need for a broader vision of value creation processes towards a service ecosystem perspective is emerging. Starting from these theoretical assumptions, and participating in the recent debate on the different ways that multiple actors can collaboratively shape a health service ecosystem, this paper aims to contribute to the literature on co-creation practices.

Design/methodology/approach. The paper is based on a literature review and on a narrative approach to case study analysis. To this end, the analysis has been focused on the narration of International Consortium for Health Outcomes Measurement (ICHOM) co-practices.

Findings. Our investigation reveals that co-creation practices, involving multiple actors belonging to different ecosystem levels, led to mutual adjustments and to on-going shared changes. These processes have directly influenced outcome creation, which is now based not only on patients' needs, expectations, and experiences, but also "with" the patients. Consequently, they are assuming the role of health outcome "co-builder", interacting with all other ecosystems actors (e.g. physicians, institutions, ONGs, health managers, ICTs providers etc.) in order to create and constantly reshape their offering.

Originality/value. This study represent a first and preliminary attempt to investigate a real example of dynamic resources' exchange, based on contribution of multiple interacting actors and on the role of interdepend and interacting institutions in value practices.

Keywords

health service ecosystem; co-creation practices; health outcome; case study.

1. Introduction

The healthcare sector is currently undergoing a profound revolution, because it represents an important share of national economies; however this sector is still characterized by unsatisfactory performance in terms of quality and costs (Porter and Tiesberg, 2004). The poor health services arising from the exclusive focus on costs and efficiency improvement has led the strategic literature to underline the emergence of a value-based view. According to relevant authors, in a value-based system the key issue is increasing value for patients (Porter, 2009): “It’s not the number of services provided or the volume of services delivered that matters but the value” (Kaplan and Porter, 2011, p. 49). This change in perspective implies that the first component of health care value is not performance, but outcome. This has led to the patient contribution to be considered as central. In other words, the patient is viewed as an active part of health outcome, a phenomenon that shows the shift from a paternalistic approach towards patients to a patient-centred one (Porter, 2010; McCormack et al., 2011; Porter & Lee, 2013; Frank et al., 2014). Despite this changing milieu and a strong promotion of the above-mentioned patient-centred approach, a real engagement is yet to come (Coulter, 2012). In fact, in health care patients are still viewed as passive recipients of information that organizations provide (Berry and Bendapudi, 2007; Payne et al., 2008). However, a growing number of academic studies (Michie et al., 2003; Ostrom et al., 2010; Mirzaei et al., 2013; Randzor et al., 2014) have investigated the role and contribution that patients, as an active resource, can offer to health care services and paths. There is a growing acknowledgment among scholars and practitioners about the importance of promoting a cooperative patients-physicians relationship (Michie et al., 2003; Quaschnig et al., 2013; Braithwaite, 2014). In particular, marketing literature has focused on patients’ active contribution in health outcome creation, viewing customers or patients as fundamental partners in services offering (McColl-Kennedy et al., 2012).

Scholars consider co-creation as key issue of increasing patients’ value (Ostrom, 2010). In healthcare, co-creation can be achieved by facilitating and increasing patient-provider interactions, their contribution being deemed essential to gaining a positive outcome and to co-creating a shared value. Thus, this interaction is aimed at co-creating “a patient-centered health regimen to improve patient outcomes” (Cox and Agee, 2012, p. 1). Consequently, health care value co-creation merges professional learned expertise and patients lived experience in order to enhance health care value and life quality (McColl-Kennedy et al., 2012).

This vision arises from Service Dominant (SD) Logic that looks at the co-creation process as a dynamic resources’ integration between actors linked through a value proposition in a dense relationships’ network (Frow et al., 2016). Acceding to this core framework, scholars have investigated ways to improve the co-creation process arising from the dyad doctor-patient, stressing the need and the importance of an experiential vision (O’Grady et al., 2008). This vision is influenced both from individuals’ personal features (culture, values, motivation, etc.) and social or physical context in which resource exchange and integration happens. Hence creating a superior patient experience is considered key in the value co-creation process (Helkkula et al., 2012; Sandstrom et al., 2008; Spina et al., 2012).

Recently, starting with the relationship between the experiential view and better resources integration among interacting actors and, consequently, among value co-creation processes, the literature recognises the need for a broader vision of value co-creation processes arising from the doctor-patient dyad. This statement also led to the need for a systemic approach (system thinking) able to analyse, according to a wider and dynamic perspective, the way actors use, merge, and share resources in order to make their offering as attractive as possible. In this context, healthcare can be considered a service ecosystem made up of interacting

actors that exchange and share resources in order to co-create value not only following a micro perspective, but also at different service ecosystem levels. In fact, Health care represents a service ecosystem of multiple actors that is more complex than a simplistic consideration of the doctor/ patient model implies (Gummesson, 2009). However, the literature is still focused on the practices that put in place from different actors can influence the dynamics at the roots of the different health care service ecosystem. According to this emerging vision, health care service ecosystem viability is based on its ability to adapt itself to a changing environment. Therefore, outcomes are the effects of the above-mentioned adaptation, due to multiple interacting actors' ability to collaborate, exchanging and creating new resources (knowledge). This perspective led not only to the improvement of single interacting actors' wellbeing, but also to the improvement of collective wellbeing, in other words to the whole service ecosystem wellbeing.

Following this logic, the several different practices through which interacting actors move their resources to make them coherent to context changes have to be understood, analysed and interpreted. This can contribute to an on-going outcomes improvement.

The literature also underlines that practices can be defined as those actions and activities that take place in a social system and that led actors to adapt and choose activities they wish to engage, following their own sense of socially constructed world (Giddens, 1984; Schatzki 2005; Kjellberg & Helgesson, 2007).

According to these theoretical assumptions, this paper aims to offer a contribution to the advancement of knowledge related to a dynamic health service ecosystem, describing and analysing co-creation practices through Frow et al.'s (2016) theoretical framework. In particular, this study has been focused on the narration of those co-practices that the International Consortium for Health Outcomes Measurement (ICHOM), a non-profit organization founded in 2012 by Harvard University, Boston Consulting Group and Karolinska Institute, have realized.

ICHOM has offered the possibility to investigate a real example of dynamic resources' exchange, based on the multiple interacting actors' contribution, in which value practices are guided by an interdependent set of institutions (Wieland et al. 2015). Participating in the recent debate on the different ways that multiple actors can collaboratively shape a health service ecosystem, the study offers a contribution to literature on co-creation practices and on their effects. Therefore, this work tries to answer a specific question: how do actors in a health service ecosystem contribute to outcome creation?

The remainder of this paper is organized as follows. In the next section, the main academic contributions on SD Logic evolution have been reviewed, particularly its evolution towards a service eco-system perspective and its insights for co-creation practices in health care. In the next section, the research method has been detailed; then follows, the discussion of findings achieved through the narration of the co-practices arising from the case study analysis. Finally, theoretical and managerial implications have been discussed and an agenda for future research has been suggested.

2. Theoretical background

2.1 SD Logic evolutions: moving towards a service eco-system perspective and its insights for Health Care

SD Logic is still under a deep evolution, moving from its first conceptualization (Vargo and Lusch, 2004) towards the subsequent advancement of its core framework (Vargo and Lusch, 2008). This have led to the evolution and consolidation of its Fundamental Premises (FPs) (Vargo and Lusch, 2004, 2008) to the current four axioms (Greer et al. 2015), in order

to gain a better specification of mechanisms at the roots of the value co-creation process (Vargo and Lusch, 2016). These recent advancements have involved not only the dynamics at the roots of value co-creation processes (Payne et al., 2008), but also the concept of value-in-use, evolved to value-in-context (Chandler and Vargo, 2011) and its subsequent extension to value-in-social-context (Edvardsson et al., 2011). These progresses have led SD Logic towards a broader ecosystems perspective (Vargo and Lusch, 2011, 2016) paving the way to the application to many different areas and research streams (e.g. logistics, health care, information technology, hospitality, management etc.).

“A service ecosystem is a relatively self contained, self adjusting system of resource integrating entities that are connected by shared institutional logics and mutual value creation through service exchange” (Lusch and Vargo, 2014, p. 24).

The Service ecosystem perspective is based on the contribution of several actors involved in resources’ integration arising from both internal and external sources (e.g. market facing, public, and social resources) in a dense network of relationships.

At the core of any service ecosystem there are some particular needs, such as: the development and maintaining of a shared view among a set of cognitively distant actors, the design and implementation of a participative architecture able to coordinate these actors, and the implementation of mechanisms able to facilitate interactions among these actors (Lush and Nambisan, 2015). In particular the SD Logic literature has conceptualized service ecosystems as multi-level structures in which the main levels are: micro, meso, and macro (Chandler and Vargo, 2011; Akaka et al., 2013).

Firm-customer interaction generates micro-level structures able to cumulatively develop towards a meso level, where organizations, communities and service actors’ collaboration contribute to the evolution towards macro-level structures, made up of several kinds of institutions and professional associations, which share generalized cultural norms, language, and laws.

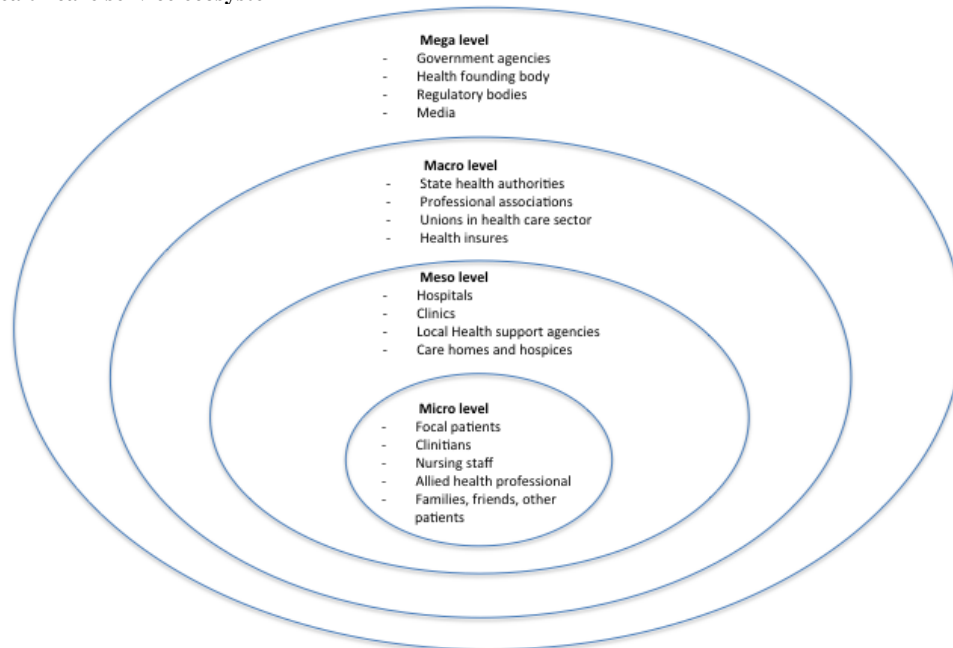
Value propositions link the above-mentioned three levels, making actors able to access and integrate those resources that contribute to the viability of an ecosystem, that is, value co-creation.

Therefore, assuming a service ecosystem perspective evokes system thinking; thus no actor is able to individually control and manage an ecosystem, being characterized by emergent properties. The dynamic nature of ecosystems, mainly due to actors’ disposition towards resources implementation and sharing, impacts not only on resources availability and offering attractiveness, but also on a service ecosystem ability, in its different levels, to adapt itself to an ever-changing environment.

The perspective of service eco-systems has been recently applied to different markets and industries, such as health care, tourism, logistics and many others. In particular, viewing health care as service ecosystem can offer a broader perspective on value co-creation practices and the collaborative logic that links each interacting actor, settled at different levels of the ecosystem.

Given the complex nature that characterizes service ecosystems, the literature (Vargo and Lusch, 2010, 2016; Akaka et al., 2013; Greer et al., 2016) still calls for a better understanding of forms and roles of co-creation practices in defining an ecosystem of interconnected, interacting, and collaborating actors. However, a specific contextualization of ecosystem perspective has been recently theorized in health care, where micro, meso, macro, and the emerging mega levels with their related actors has been conceptualized (Frow et al., 2016).

FIGURE 1: Health care service ecosystem



Source: adapted from Frow et al. (2016)

This framework has extended the traditional service ecosystem model adding a further co-creation level, the mega level, which has a direct and deep influence in ecosystem shaping. At this level value co-creation practices involve international actors such as government agencies, health funding bodies, regulatory bodies, and media. The mega level is also influenced by several different factors, such as history, culture, politics, law, health and pharmaceutical lobbies and many others, which contribute to the shaping of national orientation to health care (Frow et al., 2014). In this direction, at macro level, health care involves national actors such as state health authorities, professional associations, unions in the health care sector, health insures, while at a meso level the interacting actors are hospitals, clinics, local health support agencies, and care home and hospice. The inner level, the micro level is focused on interacting patients, clinicians, nursing staff, allied health professionals, families, friends, and other patients.

Therefore, the shape of a health care ecosystem can significantly change according to some specific features, above all the geographic boundaries, the actions pointing to ensure a healthy population, and the interaction occurring within and across all levels (Frow et al., 2014). In other words, several actors are directly and indirectly involved in different ecosystem levels, generating, through the way resources are integrated, value co-creation or co-destruction processes.

In summary, the spread of an ecosystem perspective has led also in health care, characterized by more complex interactions than those at the roots of the traditional doctor-patient model, to the shifting from a dyadic to a many-to-many approach. This approach is deeply focused on the extension of interaction among several different actors, putting emphasis on the so-called mega relationships (Gummesson, 2009), in which, as stated before, multiple actors participate at different levels to value co-creation (Vargo and Lush, 2011). This participation takes place thanks to the sharing of specific resources, which, where collaboratively reorganized, are able to generate resources deeply different from the original ones. These new resources also lead to value propositions that facilitate the sharing of additional resources nourish by on-going co-creation practices. Therefore, it can be assumed that health care service ecosystems are emerging actor-to-actor structures able to create and recreate a supportive organizational logic to exchange services and co-create value; service

platforms enhance the efficiency and effectiveness of the service exchange. Finally, value co-creation represents the outcome, in which the service offer(er) and the service beneficiary (e.g., customer / patient) co-create value through value resource integration.

A service ecosystem provides an architecture of participation that brings clarity to the way collaborative value co-creation occurs. The architecture of participation provides a road map for the different actors to come together and engage in service exchange. It also provides the mechanisms for participants' contributions to be coordinated, integrated, and synchronized in a coherent way (Nambisan and Sawhney 2007b). Thus, shared institutional logics or the means and rules that actors use to coordinate their actions are at the roots of participation. This enables the effectual actors to operate more in unison without a strong command and control structure as typical in bureaucratic organizations. Here, drawing on S-D logic, we focus on shared institutional logics that illustrate the broader role and functions of the ecosystem in facilitating a common environment for value co-creation by a diverse set of actors.

The ability to discuss, for example via Facebook (that in the previous figure is settled at mega level and which is part of the whole ecosystem) about the effects of new procedures and treatments dedicated to a specific pathologies (e.g. the treatment of cancer, diabetes etc.). Therefore, Facebook represents the medium through which patients (settled at micro level in the figure) feed value co-creation processes thanks to knowledge sharing.

The sharing of knowledge can also occur in other dedicated social networks where patients seek for new and more specific information, reporting the achieved knowledge to the previous one (e.g. Facebook), contributing to the enhancement both of their own and common resources. Going on with the exemplification, this resources' integration contributes to new resources' creation also when related to other ecosystem levels; for example, at a micro level, when one patient, who has take part in an online discussion (e.g. on Facebook), during a visit share medical and/or general information retrieved online with the doctor.

2.2 Value Co-creation in a health care service ecosystem

Conceptualizing health care as an interactive and interacting ecosystem of actors and resources requires a better understanding of the dynamics that leads actors to share, shape, and innovate their own resources, in other words, the mechanisms at the roots of value co-creation or co-destruction. In this direction, the core issue of SD Logic literature (Vargo and Lush, 2004, 2008, 2016; Vargo et al., 2008; Akaka et al., 2012) is the investigation of how several different actors participate in value co-creation and the way they interact sharing their personal resources.

Different and emerging value co-creation dynamics directly influence the inner nature of value propositions. However, almost all contributions have mainly investigated these interactions at a micro level (Lush and Vargo, 2006; Chandler and Vargo, 2011; Hardyman et al., 2015), where a dyadic logic drives firm-customer (in our case doctor-patient) to share their resources in order to achieve a specific outcome. In this perspective, an experiential approach to service might support scholars to understand the shifting from a micro to a meso, macro, and finally mega level perspective on value co-creation.

In particular, the doctor-patient dyad and the contribution of experiential vision to the shifting towards a broader, dynamic, and multi-parties perspective inspired some contributions (McColl-Kennedy, 2012, 2015). Others contributions (Hardyman et al., 2015) have focused their analysis at a meso level, where the recent theoretical advancements have underlined that this level is concerned with the interaction between and among intermediated-sized social and institutional groups such as health care organizations, local health care institutions, and social services. Therefore, few recent contributions (McColl-Kennedy, 2015; Frow et al., 2016) are starting to explore value co-creation practices at macro and even mega

levels, focusing their analysis on the way multiple actors contribute to this practice sharing their own resources. In line with this approach, interacting with other actors (e.g. institutions, suppliers, other health providers, ONGs, families etc.), customers co-create service experiences not only in their own service ecosystem, but also at different ecosystem levels (Epp and Price, 2008; Schau et al., 2009; Vargo and Lush, 2011; McColl-Kennedy et al., 2012). It is now evident that at the core of this vision there is the understanding of service as exclusively and contextually interpreted and experienced by individuals, as a function of the role they act (Vargo and Lush, 2008; Echeverri and Skalen, 2011; Helkkula et al., 2012). Drawing on the above mentioned evolutionary perspective, within health service ecosystem there is a growing understanding that to improve a successful management of chronic diseases, such as cancer, collaborative interactions between the individual and their health provider and the active involvement of the individual is need (McColl-Kennedy, 2012). In this context, there is the opportunity to follow the contribution of some authors, who, aware about the necessity to overcome the dyadic relationship between provider and customer, develop and support relational logic based on actor-to-actor interactions (Lusch and Vargo, 2006, 2014; Akaka et al., 2012; Vargo and Lush, 2012). In this direction, an ecosystem approach offers a broader and systemic view of relationships occurring among those multiple actors that share their resources to co-create value (Henderson and Palmatier, 2010). In fact, an ecosystem perspective puts a growing emphasis not only on each actors' contribution to the whole system, but on also on how all the interaction occurs among all the interacting actors (Tomas and Autio, 2014).

To better understand how multiple actors contribute to value co-creation at meso, macro and, finally, mega level, a perspective shift is needed. In other words, the traditional approach to service experience, based on the dyadic and unidirectional interaction between customer and firm, should be changed to of a broader, dynamic, and multi-party perspective. In fact, assuming a broader perspective can help to better understand not only “where” actors influence others and are influenced, but also “whom” others influence in an ever-changing ecosystem (Frow et al., 2014), focusing on the interaction among and within multiple actors (Araujo et al., 2008).

Generally speaking, practices are “routinized ways in which bodies are moved, objects are handled, subjects are treated, things are described and the world is understood” (Reckwitz, 2002, p. 250). In sum, practices are those actions joined together by interaction among actors (Schatzki, 2005).

Moving towards a meso, macro, and mega level approach to value co-creation activities, the Practice Theory can support the investigation of how multiple actors' interactions influence value co-creation processes at intra and inter level of a service ecosystem. In fact, this theory offers an alternative approach to value creation (Schau et al., 2009), according to which customers' participation (in our case patients participation) to service experience co-creation is based on the interaction with others actors at different levels of their service ecosystems (Vargo and Lusch, 2011; McColl-Kennedy et al., 2012).

However, the literature is still lacking studies investigating how, especially at a meso, macro, and mega levels, the interactions among multiple actors contribute not only to resource sharing and creation, but also to the emergence of ever-changing value co-creation processes.

Starting from the seminal work of Frow et al. (2016), which has paved the way for the analysis of value co-creation practice in a health service eco-system perspective, this study aims to contribute to the better understanding on how multiple actors interactions can change the shape of a health care service ecosystem, influencing its ability to self-contain and self-adjust resources that actors share according to a relational logic of mutual value creation (Lusch and Vargo, 2014, p. 24).

3. Research design

3.1 Research method

The case study methodology (Yin, 1999, 2003, Yin, 2014) has been recognised as the most fitting approach to deal with our research topic, the understanding of multiple actors' contribution to those healthcare co-creation practices occurring in a healthcare service ecosystem. To this end, the seminal work of Frow et al. (2016) have inspired the analysis; thus, starting from the provided theoretical model of health care ecosystem, we have read the International Consortium for Health Outcomes Measurement (ICHOM) case study according to the eight Co-creation Practices (CP) defined in the same work. In this direction, as Adams (2002) stated, a fieldwork aims to “deeply investigate the main features of a phenomenon” and better understand the dynamics of a specific process (Ryan et al., 2002). Therefore, the case study methodology has represented “a research strategy focused on the comprehension of those dynamics characteristic of specific contexts” (Eisenhardt, 1989, p. 532). This method facilitated the investigation of a phenomenon within its context, collecting data from several and, sometimes, different sources, and provides a tentative answer to the questions that have inspired this study (Baxter and Jack, 2008). In sum, the case study approach has led to a deep investigation of the health care inner systemic nature and the contribution of different actors' to health outcomes.

This case study analysis has taken the form of a “narration” (Iwakabe, 2015), in which no quantitative outcomes were measured. Consequently, inspired by a story metaphor (Simons, 2009) and the narrative approach to case study research (Etherington and Bridges, 2011) we have collected, organized, and interpreted various information arising from ICHOM's partner stories in order to better understand how multiple actors contribute to different co-creation practices. This information has been retrieved from several secondary sources (e.g. reports, handbooks, papers, video-interviews, corporate blogs, and corporate social networks) accessed surfing ICHOM corporate web sites.

Before starting the gathering of the most relevant evidences, a specific research protocol has been defined in order to organize the collected data in a digital worksheet and individually analysed by the authors. Then, the collected evidences have been classified in the following homogeneous corresponding to the above-mentioned Co-creation Practice (CP). At first, authors has individually analysed the practice; then all of them have critically revised them. Finally, a research report has been arranged.

3.2 ICHOM: an overview

The International Consortium for Health Outcomes Measurement (ICHOM) is a non-profit organization born from the initiative of different scientific, medical, and business organizations such as Harvard University, Boston Consulting Group, and Karolinska Institute. ICHOM has focused its mission on a general re-thinking of the health care international system, supporting the development and the spread of shared systems dedicated to the measurement and reporting of socio-economic actors' contribution to health outcome.

ICHOM's mission is aimed at developing a value-based health care, defined thanks to the direct contribution of patients, to global Standard Sets of outcome measures, and to drive their worldwide adoption. Currently, due to the contribution of several health care and no healthcare actors, ICHOM has been able to map 13 diseases and define their related set of standards. According to the collected information and the theoretical framework (Frow et al., 2016) at the roots of this study, ICHOM can be positioned at the mega level of a health service ecosystem. In fact, it is an international ONG interacting and bringing together, according to a co-creation logic, different actors (e.g. local and national institutions, health

providers, physicians, patients etc.) in order to achieve high quality health outcomes. In fact, it believes that outcomes are the ultimate measure of success in health care.

4. Findings

The narration of ICHOM’s case study has been based on information collected, organized, and interpreted retrieved analysing the stories and the experiences of its partners’, mainly published on its corporate web site. It found out that each story was different and unique, in terms of informant actor, nationality, organization, and role.

The features that mainly stood out in the co-practices narrated were actors’ involvement, collaboration, and cooperation in achieving high quality health care outcomes. Moreover, according to a systemic view, ICHOM facilitated the interaction between and among multiple actors belonging to several different and interacting systems, making them able to compare, learn, and improve.

The following table shows, through the narratives of different actors belonging to ICHOM ecosystem, the way they contribute to specific health care co-creation practices, the insights arising from the practices themselves, and the ecosystem level they impact on.

Co-creation practice	Ichom’s Practices Narration	The lesson learned	Impact
CP1 Practices that endow actors with social capital	<p>HCF Research Foundation Director Wayne Adams stated, “we have established a partnership with ICHOM because we recognize the critical need to shift the Australian health care system towards one based on outcomes, not simply outputs, and see our work with ICHOM as supporting that transformation.”</p> <p>The director also stated, “the collaboration with ICHOM reflects a growing recognition that driving value in health care requires cross-stakeholder engagement. HCF has decided to collaborate with ICHOM to respond to health care expenditure cutting off. This situation has led poor population to suffer from their inability to pay for their treatments. Consequently, the partnership with ICHOM has made HCF able to offer an economic support to people who couldn’t pay for their care path, respecting ICHOM health standards”.</p> <p>An informant patient engaged in one of ICHOM’s online forums shared on its blog her experience, telling, “I was expecting, once again and, having lost my first baby, I was determined to avoid a reprise of the tragedy of six years before. In fact, ever since Michael is passing, I had been thinking about how I could help improve health care structurally and systemically. The head echo cardiographer said that my second baby had TOF (Tetralogy of Fallot) and he would likely need multiple open-heart surgeries, my focus became medical condition and its outcomes. So I tried to take the best decisions about hospitals, surgeons, and treatments. I visited seven children’s hospital, meeting with cardiac surgeons and asking them directly about the best treatment. Then I gathered some of the information I was looking for. My long quest for good outcomes led to a hospital in Boston, and it was there that my son was born. He had many surgeries and spent three months in the NICU (neonatal intensive care unit). He had additional surgeries and more than two dozens oesophageal dilations. However, despite everything, he now is happy and has no altitude or exercise restrictions. I think that Medical errors must be documented alongside successes, and this information should be made accessible to both clinicians and patients”.</p>	<p>HCF active engagement in ICHOM represents a practice able to feed social capital for all the interacting actors, able to have a direct influence on their social position and influence on service ecosystem.</p> <p>Patient active engagement in ICHOM’s forum online represent a practice aimed at new knowledge spreading, in order to support other women with babies suffering from the same disease.</p>	<p>Micro/ Meso/ Macro/ Mega</p> <p>Meso</p>
CP2 Practices that provide an ecosystem with a shared language, symbols, sign and stories	<p>The chief operating officer, ICON, a global provider of outsourced development services to the biopharma and medical device industries and one of ICHOM’s partners, stated, “our standardization team began to develop SOME Standard Sets for several diseases. We are building around the world with institutions and registries measuring ICHOM Standard Sets. To this end, partners have been added to the network all over the world. In particular, 54 health care facilities in India, Dubai, Mauritius, and Sri Lanka, have started measuring the Coronary Artery Disease Standard Set”. The ICHOM’s manager for the development of outcome measurement Standard Set reported, “We at ICHOM are supporting implementation projects across the US, UK, France, Australia, and, with over a hundred</p>	<p>The development of a global Standard Sets is a practice aimed at offering to all ICHOM partners a general and shared protocol (e.g. language) to support them in outcome definition and measurement, making them perfectly</p>	<p>Mega</p>

	<p>more institutions expressing interest in measuring our outcome sets. At the end of 2015, we launched our Implementation Communities, an ICHOM support model that invites groups of value-oriented institutions to move through the implementation process collaboratively. Following our pilot Community’s success, we launched a Cataracts Community in June. As part of our on-going mission to promote outcomes measurement and share best practices publicly, we have migrated much of the content from our subscriber-only Implementation Network to a new file library located on ICHOM.org. This content is now freely available to all registered ICHOM.org users”.</p>	<p>comprehensible, and sharable within the whole service ecosystem.</p>	
<p>CP3 Practices that shape an actor’s mental model</p>	<p>The chief operating officer at ICON, one of ICHOM technical partner, stated, “We are proud to bring our clinical and technical expertise in health outcomes and real-world data to help ICHOM to launch the first global health outcomes benchmarking program”.</p> <p>ICHOM Vice President Strategy and New Program Development at ICHOM stated, “The ICHOM has also launched the ICHOM TechHub, a first-of-its-kind of review-based directory of electronic tools for outcomes measurement. Today, there exist a growing number of IT platforms that make measuring health outcomes, in particular patient-reported outcomes, easier than ever. However, it is often difficult for hospitals to identify and compare the available options, delaying outcome measurement initiatives and the movement towards value-based healthcare. Using the Techhub, healthcare providers and administrators can view profiles and reviews, sort and filter options based on key criteria, and request additional information and virtual demonstrations from those that ultimately meet their organization’s preferences and needs. In our experience, working alongside care providers around the world, we have learned that there is no ‘one-size-fits-all’ technology solution to support outcomes measurement. The diversity of geography and functionality of these platforms will allow the TechHub to serve as a valuable resource for hospitals around the world interested in measuring ICHOM Standard Sets and pursuing value-based healthcare”.</p> <p>An Informing Doctor at Memorial Sloan Kettering Cancer Centre (U.S.) reported, “Sloan Kettering engages more proactively physician in the selection of risk factors for adjustment of their approach to prostate cancer care, also through the design of their own report cards. Thanks to a secure web portal, urologists can access a report of their average risk-adjusted outcomes, aggregated over all of their patients who have undergone radical prostatectomy. In this way, urologists can compare their rate with colleagues’ rates, defining their own case mix or patient characteristics”.</p>	<p>The global health outcomes benchmarking program supports health providers in changing their practices and following the most successful ones, facilitating a wider adoption of all service ecosystem actors (e.g. Governments, Institutions, Professional Associations, Medical Staffs, Patients, Families, etc.).</p> <p>ICHOM’s TechHub supports health service ecosystem’s actors in changing the way they approach outcome measurement, facilitating their access to specific and certified tools, and enabling them to participate in co-creation practice sharing the same language (ICHOM’s Standard Set).</p> <p>The web portal, being based on logic of performance improvement and risk containing, comparing data can change not only co-creation practices, but also behaviours and activities of different physician.</p>	<p>Micro/ Meso/Macro/ Mega</p> <p>Mega</p> <p>Meso</p>
<p>CP4 Practices that impact the ecosystem, created or constrained by the physical structures and</p>	<p>FORCE-TJR’s Director of Research, a Massachusetts-based research registry, reported that rather than building new infrastructures, some U.S. providers have outsourced the collection of outcome data. Consequently, some providers were equipped with centralized registry, where the staff collected comparable data at complementary time points from multiple sites, reporting the information back to each of these various sites. Data collection process was based on patients’ direct involvement, who,</p>	<p>The development and the implementation of a centralized registry help health providers to extend and adopt new and emerging rules, norms and procedures</p>	<p>Macro</p>

institutions that form their contexts	evaluating their treatment, contributed to co-create indicative measures about physical structures, care paths, provided services, and staff performances. In fact, after a patient scheduled a surgery with a specific clinic, s/er received a call from the staff requesting their consent to send Patient-reported outcomes questionnaires to their home. After signing the consent form, patients could fill the questionnaire either through a web-based survey or on paper that can be scanned. The adjusted data were stored in the national registry, and are accessible by the treating surgeon any time through a secure website.	able to support the existing and possible new practices.	
CP5 Practices that shape existing value propositions and inspire new ones	<p>The COO at Providence Health and Services, an ICHOM Strategic Partner, reported, “implementing a value-based strategy is on the mind of nearly every health care organization in the U.S. The shifting from cost-based strategies to value-based strategies, and consequently a different orientation to competitive strategy has led some ICHOM’s providers to shape working Groups of leading physicians, patient representatives, and outcomes experts from registries. Most importantly, our Working Group members are volunteers who have equal voice in determining a shared outcome. In fact, some institutions are succeeding, and we find that nearly every element of their value strategies builds on and is strengthened by one thing: the ability to measure outcomes.</p> <p>An informant senior manager at Massachusetts General Hospital amidst that: “An aggressive shift from volume-based fee-for-service contracts to risk-based population contracts (which put providers at risk for the cost of care); the Division of Population Health Management team knew it needed a better process for determining who was best served by resource-intensive procedures. Rather than require that physicians follow rigid protocols, the Division created a decision support system to help clinicians determine when a procedure was indicated, based on a patient’s clinical circumstances. Procedures were integrated into the electronic medical record, and patients received videos and handouts explaining the risk and benefits of the various treatment options, as well as personalized consent forms that adapted those risk and benefits for their specific circumstances. The entire system was informed and refined by on-going tracking of outcomes”.</p>	<p>The implantation of value-based strategies, pointing to improve outcomes, lower costs, or both, can lead to the definition of new value propositions.</p> <p>The progressive shift to risk-based population contracts has led to a deep change of actors’ (providers and patients) focus or even value proposition.</p>	<p>Mega</p> <p>Micro/Meso</p>
CP6 Practices that impact access to resources within an ecosystem	<p>ICHOM Vice President of Research and Development reported, “at the end of 2013, we created a new website that better reflects who we are and what we do. The web site is continually enhanced especially thanks to the constant partners’ contribution. In fact, thanks to the constant and direct partners’ contribution, who contribute to enrich its contents, publishing User Generated Contents, in other words their experience about practices, general information, and reporting inefficiencies, emergencies, and the related answer. This led to the creation of a community based common meaning sharing among a flurry of new partnerships.”</p> <p>An U.S. informant doctor of Wexner Medical Center at the Ohio State University reported that his clinic created some questionnaires aimed at capturing patients’ experiences and feelings. He implemented them into his clinic as a standard to collect patients’ outcomes. During the check in, each patient was asked to complete the questionnaire, in order to make the staff able to scan it into the patient’s Electronic Medical Record (EMR) in order to track outcomes. However, even if Patient-Reported Outcome (PROMs) were not perfectly integrated with the EMR, medical staff could refer to the reports and manually trend data, in order to control the evolution of care path.</p>	The launch of ICHOM new web site and the related social tools has contributed to offer a virtual space in which multiple actors (e.g. national and international health institutions, worldwide health providers, patients, families etc.) of a service ecosystem can access and share resources.	<p>Micro/ Meso/ Macro/ Mega</p> <p>Micro</p>
CP7 Practices that forge new relationships, generating interactive and/or experiential opportunities	<p>According to ICHOM VP “the frequent ICHOM’s conferences are organized to support physician and practitioners in meeting and sharing their experiences in terms of achieved outcomes. In fact, sharing their experiences, showing problems that they have faced, and, in several cases, publishing specific papers and/or articles, they can feed new practices able to improve their offering”.</p> <p>An informant physician of Memorial Sloan Kettering Cancer Centre reported that a patient felt very safe recording outcomes, even about sensitive issues, on a computer. Consequently, in 2009 his centre started to use the Web Survey Core, an online platform that allows patients to report their outcomes directly to their physicians. The informant explaining the core functions of this platform focusing his attention on system’s ability to directly email patients the link to the survey on their symptoms. These forms could be individually filled before doctor’s visit. Patients could also complete the survey during their waiting time in the clinic through a tablet. After this, the doctor could have a comprehensive view of the responses in</p>	<p>The ICHOM TechHub, facilitating health outcomes measuring and in particular patient-reported ones, contributes to better engage actors in outcome measurement, strengthening and intensifying relationships within ecosystem.</p> <p>The Web Survey Core is an online platform</p>	<p>Meso</p> <p>Micro</p>

	an anonymous way. In this way, doctors were able to focus their attention on solving problems, rather than identifying patients, making them able to feel safe to anonymously report about their problems. This was very supporting in medical issues related to critical disease such as prostate cancer, which found patients not so confident to talk about, preferring to report about it in an anonymous way. Finally, according to the informant, the reported data can be also useful to support clinical decision-making.	aiming to better engage actors in new co-creation practices, based on as safe and confident as possible doctor-patient interaction.	
CP8 Practices that are intentionally co-destructive creating imbalance within the ecosystem	An informant doctor of Memorial Sloan Kettering Cancer Centre reported about the way physicians react to the implementation of a new program of electronic survey. The doctor reported that in his centre medical staff didn't use a digital program, considering it not only too complex, but also because they found out that viewing survey data moving from multiple windows of the electronic medical record took too much time. Consequently, they felt they were wasting their time, especially in overbooked days. According to this doctor, his colleagues were also critic of this tool, considering the report it provided hard to interpret and offering little useful information.	The negative reaction of Memorial Sloan Kettering Cancer Centre physicians has led to the emergence of disrupting practices, based on actors' defection from the ecosystem.	Meso

Table 1: our elaboration

5. Discussion

The narration of the several different analysed practices is focused on a patient-centric vision; however, their impact is not limited to a micro level perspective (CIT), but it spreads towards the different levels of a health care service ecosystem. Several actors (e.g. patient, health providers, institutions, social networks, etc.) are engaged in outcome creation, contributing to this process in several different ways and sharing their personal resources. Consequently, introducing and encouraging different health care co-practices affects outcomes' long-term benefits both in terms of health care services on-going enhancement for the different actors, participating (at several levels) to value proposition creation, and patients, directly involved in outcomes definition. In particular, patients through lived and shared experiences reap the benefits of a better quality of life. According to a recursive and circular logic, these statements enable the whole health service ecosystem to improve effectiveness and efficiency.

Following this scarlet thread tying all the co-practices, some lessons can be learned:

1. In terms of practices that endow actors with social capital (**CP1**), the first narration, affecting Mega level, underlines the importance of trust and cooperation among the interacting actors, which arise from ICHOM's ability to enhance the density of interactions. The active engagement of ICHOM's partners feeds and distributes social capital among all the interacting actors, influencing their position, influence, and attractiveness on service ecosystem (Schau et al., 2009). On the other hand, the narration of this first practice has pointed out the presence of bounding (e.g. ICHOM vs. HCF) and bridging ties (Putnam, 2000). In this case, sharing the experience between HCF, an Australian non-profit health insurer, and its customers have benefitted from ICHOM's knowledge by being able to create resources that meet the peculiar needs of a specific market segment/ niche.
2. The second narration, impacting at meso level, underlines that knowledge thanks to the experience that a patient has lived, is shared both with other women and mums suffering from similar diseases (bridging ties) and physicians external to the immediate ecosystem (linking relationships), who can benefit from resources (knowledge) that others have applied to the same disease.
3. In terms of practices that provide an ecosystem with a shared language, symbols, sign and stories (**CP2**), the adoption of a common language promotes the transparency and reliability of shared information, making all the interacting actors able to co-create shared meanings, arising from common narratives, symbols, and signs (Akaka et al., 2014). The

transparency at the roots of Standard Sets developed and shared among all the interacting actors prevents an ambiguous analysis of care practices putting emphasis on value co-creation and contrasting value co-destruction practices. This result can be achieved defining and sharing experiences or, alternatively, halting negative practices that can lead to the co-destruction of value. In fact, a consistent and transparent measurement of health outcomes based on shared Standards Sets (language) can improve patient experience, outcomes quality, and reduce health care costs.

4. The case study narration has pointed out some interesting practices able to shape an actor's mental model (**CP3**). In particular, ICHOM's outcome benchmarking program positively affects both on dynamic interaction among different actors and intra and inter levels, leading to radical change or a reshaping of the mental model that drives multiple actors' activities towards a continuous improvement. In this case, ICHOM's leading activities and its central position within the health care service ecosystem have a deep influence on other interacting actors' mental model, feeding/ enabling the ecosystem's dynamic configuration. In a global health care system this change led to the improvement of health performance and, consequently, of services offered; on the other hand, according a more general perspective this led to an overall quality of life improvement.
5. The practices that ICHOM has enacted in order to influence the ecosystem, created or constrained by the physical structures and institutions that form their contexts (**CP4**) highlights the ability to improve care pathways through resources' integration. In fact, as the co-practice shows, physical resource (National Registry sponsored by ICHOM) dematerialization, outsourced to a specialized external provider, redesign the physical structure of a clinic, building new intangible infrastructure. Consequently, the implementation of the National Registry poses knowledge sharing at the core of patient care, making patients able to be free to report their care path experience and their requests for care improvement. It is evident that this structural change can potentially affect and change the way actors interact, paving the way for new emerging co-practices. This change benefits not only the treatment of a single patient, making it ever more customized, but also the knowledge improvement of a single organization and of all those health care organizations that can access the register and participate in new resources (knowledge) creation.
6. In terms of practices that shape existing value propositions and inspire new ones (**CP5**), the emergence of a value-based approach has led some ICHOM's providers to shape new relationships among actors and new ways to share their resources in order to create a new value proposition, that is a collaborative outcome. In particular, new value propositions have defined quitting cost-based strategies and implementing value-based strategies aimed at improving outcomes and/or lowering costs. Consequently, the implementation of these strategies has led to the emergence of new value propositions. In line with the previous co-practice, but influencing micro and meso levels, the second co-practice highlights that the improvement of patients' collective wellbeing has demanded a new value proposition that is the definition of customized treatments, selected thanks to a decision support system. In this way the health service ecosystem has been shaped due to the action of multiple actors (e.g. medical staff and patients), who have integrated resources in new ways and contributed to new offering creation.
7. The narration has also pointed out some practices that impact access to resources within a health care service ecosystem (**CP6**). In particular, the development and the implementation of an open platform highlights the logic on which ICHOM's and all the interacting actors shape the service ecosystem. This platform enables an on-going resource sharing and at the same time contributes to new resource creation, facilitating the contribution of multiple actors and, in particular, of individuals who according to

their role (e.g. patient, relative, parent, friend etc.) can publish and share User Generated Contents (UGCs). In other words the open access platform, enabling actors' participation to specific co-creation practices, makes them able to access new resources arising from the merging of their different and personal resources.

8. In terms of co-practices that forge new relationships, generating interactive and/ or experiential opportunities (**CP7**), it has to be reported that the narration of the great number of collected experiences is hard to achieve. In fact, the co-practices that enable the development and the on-going improvement of new relationships in the health service ecosystem are numerous. For example, the frequent ICHOM's conferences represent the arena in which physicians share and create new resources (knowledge). Therefore, several are physicians' narratives related to this co-practice, in which they explained the implementation of new treatments that have led to positive outcomes. Another practice is related to the publication of several papers merging scholars and practitioners' competences, skills, and expertise. As in other co-practices, the relationships between the interacting actors have led to new and additional knowledge that contributes to outcomes enhancement.
9. Last but not least, as the discussion of CP6 has demonstrated, ICHOM's online forum makes multiple actors able not only to share experiences and resources, but also to create new ones (knowledge) in order to enhance performances and the offered services. This practice also allows individuals (e.g. patients, relatives, parents, friends etc.) to seek and share knowledge about their condition or treatment through the online forum. It is evident that the enhancement of performances and services also led to the wellbeing of whole health service ecosystem. This practice underlines the great openness towards knowledge sharing, according to logic of on-going adaptation.
10. The narration has also pointed out some practices that are intentionally co-destructive creating imbalance within the health care service ecosystem (**CP8**). In particular, a co-disruptive practice has been found among the medical staff of an U.S. provider. In fact, it has demonstrated a voluntary resistance to changing managerial routines, due to the implementation of a new physical resource (a program of electronic survey). In this case, resistance disrupted the ability to create patient positive outcome. It has also to be reported that the negative attitude of medical staff towards the new physical resource was mainly due to the different logic that guides practice in different ecosystems - in our case the health service ecosystem in which the electronic survey has been implemented and the ICT service ecosystem in which it has been developed - and has sometimes led to unbalanced and unproductive interactions among actors who participate in various embedded ecosystems (Akaka et al., 2013). To solve this negative co-practice, the senior managers of this clinic have organized training experiences pointing to facilitate the acceptance of this tool among medical staff.

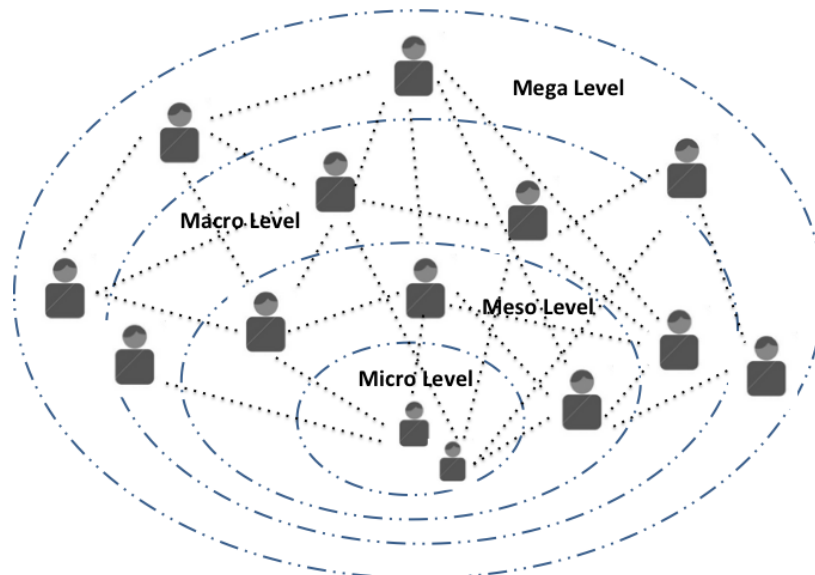
6. Conclusions and implications

This paper supports the role of co-creation practices in a health service ecosystem, contributing to the emerging debate on health service research. In particular the research contributes on the one hand to the empirical application in a specific context of Frow et al.'s (2016) theoretical framework, on the other hand to highlight the underlying processes at the roots of value co-creation and the coordination of resources' integration in a network of a multiple interacting actors (Ostrom, et. Al 2015).

Referring to the former, ICHOM have represented an extreme case (Eisenhardt, 1989) in shaping a service ecosystem, enabling not only resources' sharing and coordination

(knowledge), but also new resources creation (shared visions), enabling the on-going ecosystem adjustment. The adoption of a patient-centered approach, according to which health outcome represents the starting point of value creation, led to organizational, physical, behavioural, and emotional changes. Referring to the latter, co-creation practices created by different actors, belonging to different ecosystem levels, show a mutual adjustment, contribute to ongoing and shared changes. According to the previous statements, outcome creation takes place not only considering patient's demands, needs, expectations, and experiences, but also "with" the patient, who becomes health outcomes' co-builder, due to the ability of the different actors (e.g. doctors, health managers, ICTs providers, non-profit organizations, etc.) to interpret the resources that patients offer in order to continuously redefine their offering. This is fundamental in terms of co-creation influence both on the same ecosystem level, and on the others. Following this logic emerges a mutual adjustment of those different actors' that interact at all four ecosystem levels (micro, meso, macro, and mega), powered by changing gradually shared thanks to synergistic interactions (Mele et al 2014), able to promote a creative adaptation.

FIGURE 2: Resources' exchange among and between actors of different ecosystem levels



Source: our elaboration

This research has interesting managerial implications.

First of all, managers should establish relations not only with closer actors, but they should extend them at micro, meso, macro, and mega level, avoiding those actions that might produce negative outcomes. Moreover, the lessons learned analysing the co-practices could assist managers in their practical applications.

The research is somewhat limited by a focus just on ICHOM co-practices and not opening it to the other actors belonging to the ecosystem. Starting from this limitation, further investigations will be focused not only on co-practice influence, assuming the perspective of actors interacting at different ecosystem levels, but also on those business models that support or prevent co-creation practices. According to this perspective and moving from the institutional change occurred in value co-creation practice (Wieland et al 2015), it would be interesting to investigate those business models that enhance or prevent these practices. Moreover, further research will investigate two challenging issues: (1) the way the co-creation practices make relationships and ties as strong as possible in health service ecosystem, and (2) the role of ICTs in shaping service ecosystems.

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