

# The “infection” of health care service ecosystem: the tools used for assessing patient satisfaction

M. V. Ciasullo, S. Cosimato, A. Douglas, O. Troisi

## ABSTRACT

*Purpose* – Embracing the service ecosystem perspective, this paper focuses on the analysis of patient satisfaction surveys, which are the most common tools that public and private health care providers use in order to assess the quality of provided services. In Italian National Health Care System (NHS), the assessment of patient satisfaction is not at the core of the institutional strategies, but follow the path defined by the Standard ISO 9001:2008. Consequently, each single service provider follows personal initiatives of patient satisfaction assessment. This paper is aimed at better understanding how the results of patient surveys can affect actors’ disposition to co-create value for the whole health care service ecosystem. In this respect, the main question is, *are the used tools service-oriented?*

*Methodology* – Drawing on Service Dominant (S-D) Logic and the most recent service ecosystem perspective, an in-depth literature review has been conducted in order to better understand the way patient satisfaction surveys can positively or, on the contrary, negatively affect health care service ecosystem viability.

*Findings* – The study highlights that, in Italian NHS, institutions (e.g. governments, health agencies, etc.) still fail to moderate the interaction between ecosystem actors, especially between physicians and patients, having not yet institutionalized any tool aimed at assessing and at giving the right emphasis on patient engagement in medical services. In particular, the present study launches the idea of “infection” of health care service ecosystem, which depicts the influence that negative elements can have on value co-creation and, consequently, on service ecosystem viability.

*Practical implications* – The study pointed out that to face the emergence of possible adverse conditions, health service providers should assume a service ecosystem perspective based on S-D logic. Moreover, institution should foster those “rules of the game” that institutionalize the disposition of health care service actors to contribute to value co-creation. In sum, institutions should define specific strategies to avoid the emergence of “infections” in health care service ecosystem, for example investing in patient operant resources, using tools that exploit the health care service ecosystem well-being, rather than infecting it, using unfitting assessment tools such as patient surveys.

*Originality* – This study represents one of the first attempts to read the tools used to assess patient satisfaction embracing a service ecosystem perspective.

**Key words:** SD Logic; Health Care Service Ecosystem; Patient Satisfaction; Infection.

---

M. V. Ciasullo, Ph.D. in Business Administration, Associate Professor, Department of Business Sciences, Management and Innovation Systems (DISA-MIS) of the University of Salerno; research areas/interests: strategic management, service marketing, corporate sustainability and business ethics. E-mail: [mciasullo@unisa.it](mailto:mciasullo@unisa.it).

S. Cosimato, Research Assistant, Department of Business Sciences, Management and Innovation Systems (DISA-MIS); research areas/interests: service marketing, corporate sustainability, business ethic, and service logistics. E-mail: [scosimato@unisa.it](mailto:scosimato@unisa.it).

O. Troisi, Assistant Professor in Economics and Business Management at the Department of Business Science - Management and Innovation Systems, University of Salerno; research areas/interests: service research, value co-creation, public management and governance.

A. Douglas, Management University of Africa, Nairobi, Kenya; Co-Editor The TQM Journal. E-mail: [tqmeditor@gmail.com](mailto:tqmeditor@gmail.com).

## **Introduction**

Currently, health care is suffering from a growing complexity, being characterized by a large number and variety of people and organizations, a high intolerance to failures (Chahal and Eldabi, 2008) and handling with a critical issue such as people's health (Polese and Capunzo, 2013). Consequently, health care organizations are still seeking to find the most fitting response to the social demand in terms of both medical treatment and well-being. In fact, the primary goal of health care is making population as healthier as possible, offering complying and high quality services. Nevertheless, health care organizations seem to be still focused on offering the most fitting response to patients' demands and expectations, just monitoring their satisfaction. This situation is mainly due to health care endurance of a good-centered orientation, which still focus on "products" (e.g. hospitalization, ambulatory care, medications, procedures, and therapeutic care, etc.) and fails to adopt the emerging service-centred view (Chakraborty et al., 2014). However, the inner complexity of health care calls for a new interpretative perspective, able to depict the growing importance of patient and other social actors in contributing to define more suitable services.

Embracing the S-D Logic perspective, this paper reads health care service according to the service ecosystem approach and focus on the way actors' interactions can positively or negatively affect the viability of the whole health service ecosystem. In particular, starting from the analysis of the providers-patients dyad, the study underlines how value co-creation processes occurring at this level can affect the whole ecosystem.

It worth to report that the appliance of a service ecosystem perspective to health care is still in its infancy (Joiner and Lusch, 2016; McColl-Kennedy et al., 2016); thus, literature is still scarce and challenging.

Starting from the biological conceptualization of ecosystem, considered as a set of living and non-living organisms which goal is maintain an equilibrium among their resources in order to stay viable (Jackson, 2011; Barile et al., 2016a), service research, instead, stated that a service ecosystem arises when several (living and non-living) actors interact, sharing their respective resources to co-create value. These resources are "linked together through value propositions in a network of relationships" (Frow et al., 2014, p. 340) and can be exchange among and between the three nested levels that shape a service ecosystems: the micro, meso and macro level (Chandler and Vargo, 2011; Akaka et al., 2013).

In health care, a service ecosystem arises when multiple and complex interactions occur among several different actors, going beyond the dyadic physician-patient relationship (Joiner and Lusch, 2016). Literature commonly looks at the growing complexity of this domain as a wicked problem (Krause, 2012) and as one of the reasons why a more collaborative approach is needed (Naccarella et

al., 2012). Thus, this ingrained complexity cannot be grasped following a Good Dominant (GD) Logic approach to health care (Joiner and Lush, 2016), because it fails to recognise the closeness and the mutuality at root of actors interactions and, of course, of the relationship existing between health providers and patients. Embracing S-D Logic, health service providers and patients are considered as capable at sensing, experiencing, creating, integrating resources and learning, that is, able to use their knowledge and skills to benefit each other (Joiner and Lusch, 2016). This implies the assumption of win-win perspective, based on interplayed relationships and mutual trust, which are fundamental in fostering actors to share and combine their resources. However, this represent a strictly positive approach towards health care; thus, sometimes patients do not cooperate with health providers, assuming negative and “infective” behaviours that constraint the co-creation of value or, even, contribute to co-destruct it (Plé and Cáceres, 2010). This is what often happens with patient satisfaction surveys, which are mainly intended at assessing the quality of service just in its material dimension (servicescape) or in other words embracing a G-D Logic approach.

Drawing on the service ecosystem perspective, the analysis aims at investigating if and how the results of patient satisfaction surveys can positively and, on the contrary, negatively affect value co-creation processes and the well-being of the whole service ecosystem. Consequently, the main questions that this paper tries to answer is the following, *are the patient satisfaction surveys service oriented or not? If not, why they “infect” health service ecosystem?*

### **1. Health care complexity and the rising of service ecosystem/s**

Health care represents an expressive example of what literature defines a complex, dynamic and adaptive service system (Begun et al., 2003). Focusing on complexity, it worth to underline that it emerges when human and non-human entities interact in a non-linear way, often generating unexpected outcomes (Plsek and Greenhalgh, 2001; Lipsitz, 2012).

The literature still lacks of a punctual definition of complexity, even if it generally points to something opposite to “simplicity” (Gell-Mann, 1995; Barile, 2011; Polese et al., 2014) and context-dependent (Mainzer, 1997). When related to health care, complexity includes several factors that interact in intricate and variable ways (Runciman et al., 2007). Wickramasinghe et al., (2007) considered health care a system of systems or a set of self-regulating, extensive, intricate and distributed systems, which complexity is influenced by the number of components who populate it, e.g. patients, physicians, nurses, hospitals, healthcare organizations, pharmacies, government regulatory groups, licensing and funding agencies, and insurance companies (Faezipou et al., 2011). In fact, all these components or (living) actors co-exist within health care system (Lusch and Wu, 2012; Frow et al., 2016) and interact with many other (non-living) actors, which play a deep influence on the way they interact, e.g. public

and private economic resources, laws and regulations, cultures, hospital/clinic management style, country reputation, hospital/clinic reputation, technology. These components and the relationships occurring among them makes possible to read health care as a complex service ecosystem.

Drawing on S-D Logic, service ecosystems have been described as “relatively self-contained, self-adjusting system of resource-integrating actors that are connected by shared institutional logics and mutual value creation through service exchange” (Lusch and Vargo, 2014, p. 161). Moreover, the rising of this service setting has been considered as “an emergent process in which individual and collective agency, together with the institutional arrangements of the social system in which they operate, are mutually constitutive entities of that system” (Taillard et al., 2016, p. 2972).

Focusing on health care service ecosystem, its inner complexity has influenced the shifting from a dyadic, towards triadic and, finally, to complex networked interactions among ecosystem actors (Lusch et al., 2016, p. 2960). In particular, Vargo and Lusch stated, “in specialized human systems value is not completely individually, or even dyadically, created but rather it is created through the integration of resources provided by many sources” (2016, p. 9). However, at the core of the above-mentioned network of dense and nested relationships still lies the focal dyad physician-patient. More in depth, being the service system theory based on the assumption that the whole does not represent the simple sum of its parts, this contribution is aimed at analysing how the relationships at the roots of the focal dyad physician-patient contributes and affects value creation in a service ecosystem (Mele et al., 2011; Aarikka-Stenroos and Jaakkola, 2012; Lusch et al., 2016). In particular, a challenging issue emerged from the analysing of if and how this dyad contributes to co-create value.

Managerial literature traditionally defines value as the balance (trade-off) between perceived benefit and costs (Lovelock, 2000). However, this definition does not fit with the inner nature of health care service. In fact, in this domain value is not simple to asses; thus, the definition that S-D Logic provided seems to be more in line with what happens in health care domain. Lusch and Vargo (2014) assumed that value is always uniquely and phenomenological determined by the beneficiary and co-created thanks to actors’ disposition towards interaction and resources integration.

Literature underlines that at the core of health care service ecosystem lies the patient engagement (Joiner and Lusch, 2016; Frow et al., 2016). Consequently, medical providers should encourage patients’ engagement in order to make them able to participate in medical practices in terms of mutual value propositions aligned (Chandler and Lusch 2015), which motivate actors to became active players (Prahalad and Ramaswamy, 2004) and to be engaged in resource sharing in order to fulfil their needs. Value co-creation emerges from the engagement of patients; thus, when the engagement happens, it is evident that the arising effects radiate out into the different ecosystem levels (micro,

meso and macro). On the other hand, when the engagement do not happens, the resource integration do not occur, then, value co-creation fails and the subsequent effects radiates on the whole ecosystem. In sum, being the value always co-created, it roots on actors' engagement and the interactions occurring among them and across each ecosystem level (Frow et al., 2014). Drawing in this considerations this paper is mainly focused on the analysis of the interactions occurring at micro level between patients and health service providers to better understand the influence that patient satisfaction surveys have on patient engagement or not.

## **2. The influence of patient satisfaction surveys on health care service ecosystem**

In health care, patient satisfaction is a fundamental pillar of medical services, being a central element of treatments quality and a contributing factor for planning further and ongoing improvement service (Morris et al., 2013). It follows that a patient is satisfied when he/she feels their requests in terms of service cost and accessibility, care quality, physician role and behaviour, physical facilities satisfied (Naidu, 2009). Going beyond the previous factors, organizational structure of clinics/hospital, treatment length, perceived competence of physicians, clarity and retention of physicians' communication to patients, physicians' control, and patients' expectations (Lochman, 1983) also assess patient satisfaction.

Pascoe (1983) defined patient satisfaction as “a health care recipient's reaction to salient aspects of the context, process, and result of their service experience” (p. 189); thus, according to a value-based approach to medical care (Kennedy et al., 2014), it represents a core dimension of treatments' quality and patient-centred approach to the care (Jean-Pierre et al., 2010). Consequently, several different and specific methods have been developed to assess patient satisfaction. In particular, in their seminal work Ware and Snyder (1975) developed the “Patient Satisfaction Questionnaire”, which helps, *from so much time*, with the planning, administration, and evaluation of health service delivery. More recently, a new tool has been developed, the Consumer Assessment of Healthcare Providers and Systems (CAHPS), which now represents one of the most popular tools for measuring patient satisfaction and its influence on quality of care (CAHPS, 2008). These surveys ask patients to report their experience with healthcare, so they have been customized in order to be used in different health care settings (e.g. US, Canada, UK, etc.) (Faezipour and Ferreira, 2013).

Institutions should put at the core of their strategies specific institutional arrangements, aimed at better defining the way providers and patients can interact when they use formalized tools, such as the satisfaction surveys. In Italy, there are no specific and institutionalized tools aimed at assessing patient satisfaction; thus, this issue is left to the personal initiative of health providers, which can

assess the satisfaction of their patients for example through the questionnaires defined and included in the Standard ISO 9001:2008.

In terms of patient satisfaction, recently some scholars reported (Graham et al., 2015) that it represents complex construct, not necessarily linked neither to the exclusive perspective of the patient's results nor to the outcomes measured by clinicians. In this sense, assuming patients' perspective, it worth to underline that value "may include such intertwined positive experiences that are now more 'enabled' such as having lunch with a grandchild, attending a sporting event, a high school graduation, going to church, book club, and the like. They may also include intertwined negative experiences that one is 'relieved' of as a result of health care treatment" (Joiner and Lusch, 2016, p. 28). All these elements contrast with what is commonly asked in patient satisfaction surveys, which deal with patients' perceptions (e.g. room cleanliness, staff courtesy, tasty food, physician disposition towards patients' requests, etc.). In fact, even if surveys seem to be reliable (replicable), they lack in validity, offering superficial and overgeneralized data (Woodside, 2010; Gummesson, 2017). In other words, they are unable to totally grasp the complex determinants of patient satisfaction that embrace a more holistic perspective of patient well-being, which seems to go beyond the mere medical treatment.

In this direction, Joiner and Lusch (2016), defining a new Service-Dominant Logic for health care, considered patient satisfaction surveys as rooted on a Good Dominant (G-D) Logic approach, while embracing S-D Logic should lead towards value assessment measure and readiness assessment tools. This also implies a focus shifting from the quality of care towards the value of care. In fact, S-D Logic goes beyond the linear and close system of products' suppliers, to embrace a more holistic approach to value, made up of several co-creating actors.

Moving from the previous considerations, being health care a complex service system, it cannot be understood through simple quantitative and numeric meters aimed at assess the performance of medical and non-medical staff. This causes a standardization that not embrace a holistic vision of care value, which should be expression of the way actors interact within the service ecosystem.

Assuming patient engagement as the leading element to assess his/her satisfaction, it has to be reported that almost all the tools designed to assess it are built on a traditional and old-fashioned logic according to which physician are the only service providers (Joiner and Lusch, 2016). Assuming a service ecosystem perspective, several are the actors that contribute to the value of care sharing their resources. However, when the resource sharing fails, physician keep to be considered the only value creator. In fact, service assessment goes beyond the mere evaluation of servicescape on which the quality of care depends, forgetting that patients are aimed not only at defeating and prevent their diseases, but also at achieving a good quality of life and a higher life expectancy (well-being). Therefore, along similar to what happens in biological ecosystem, they can be infected by several

pathogens, which can cause diseases for both animals and human beings, in the same way, in our case, a health service ecosystem can be “infected” by the bad design of the assessment tools, unable to grasp the compelling and holistic dynamics underlying the assessment of care. In other words, patient satisfaction surveys can be considered as something able to disrupt rather than contribute to create value for the whole health service ecosystem.

### **3. A Critical Reading of ISO 9001:2008 guidelines for assess patient satisfaction**

Over the past decades, the assessment of patient satisfaction has gained importance, being considered an essential way to grasp information about how and where health care organizations should improve the quality of their services.

As stated in the above sections, in Italian NHS institutions fails to put at the core of their strategies the assessment of patient satisfaction. Thus, this practice is still conducted following the guidelines of the ISO 9001:2008, an international standard that drives organizations in the establishment of a Quality Management System (QMS) (Heuvel, 2006), supporting them in satisfying customers’ need for high quality services (Rakhmawati et al., 2014). However, it has to be reported that it is a generic standard, which almost all organizations can implement whatever industry or field they belong to (Cianfrani et al., 2009; Hernandez, 2010; Tricker, 2014).

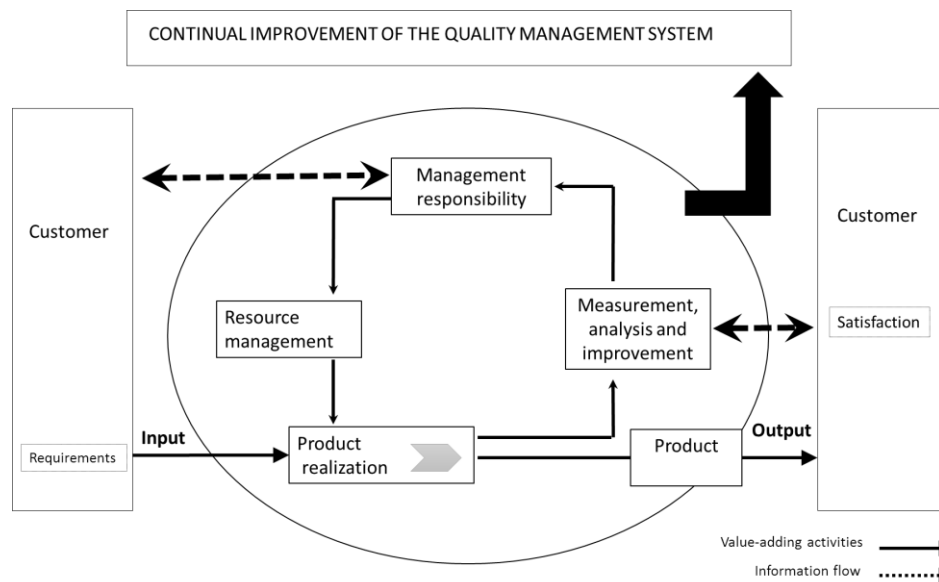
In health care, the ISO 9001:2008 represents for medical providers a starting point towards Quality Management and the improvement of its processes, traditionally considered poorly designed (Bell, 2010). In particular, this standard is aimed at supporting health care organizations in offering medical and non-medical products/services complying with patients’ needs in order to increase their satisfaction. Moreover, the above-mentioned standard encloses, among other specific procedures, a generic and customizable survey to assess customer or, in our case, patient satisfaction.

Health care institutions still look at patient satisfaction surveys as a tool aimed at improving the overall organizational performance (Al-Abri and Al-Balushi, 2014); thus, they use it to gain information about those strengths and weakness that drive managers towards processes efficiency and effectiveness (Ransom et al., 2005; Committee on Redesigning Health Insurance Performance Measures, Payment, and Performance Improvement Programs, 2006). Furthermore, the ISO 9001:2008 guidelines paved the way for the continuous assessment of patients’ needs and demands, in order to make health providers able to know how to improve the service they offer.

In Italy, patient satisfaction is currently assessed according to a strictly ISO-driven perspective, being conceived and used following a structural and process orientation. In other words, patients are still considered as exogenous to the processes of quality improvement; thus, they just generate the inputs (e.g. complains, suggestions, etc.) that start the process aimed at improving quality (Fig.1), but still

stay as mere recipients of the service arising from the above-mentioned process. In fact, patient are neither actively engaged in service design and provision, nor in the development and implementation of assessment tools.

Figure 1: The model of a process-based Quality Management System.



Source: adapted from Mullan, 2001.

The process of quality improvement that ISO 9001:2008 defined is based on the PDCA (Plan, Do, Check, Act) methodology (Gupta, 2006; Sokovic et al., 2010; Taylor et al., 2013), involving in its activities (quality management, management responsibility, resource management, product realization, measurement, analysis and improvement) just medical and non-medical staff of both public and private health providers (Mullan, 2001). Consequently, patients are have to rate just the personnel (e.g. his/her education, training, experience, certification, etc.), the servicescape (the setting where the care is provided) and the activities (processes) related to the delivery of care (e.g. acceptance, diagnosis, prescription, etc.).

Drawing on previous considerations, patient satisfaction surveys still remains product- or good-oriented, being highly standardized and not able to grasp the psychological disposition of patients towards the medical service they experienced. However, these factors fail to highlight other important and immaterial features related not only to physician-patient relationship, but also to the personal and psychological disposition of patients and their families (Ransom *et al.*, 2005).

The structural nature of ISO standards and their inner orientation towards efficiency deeply affect all the tools that made up the Quality Management System. In fact, the continuous improvement of the system that these procedures advocate is mainly oriented to make the structure and the processes of



a specific health care organization as efficient as possible. In particular, the ISO 9001:2008 procedures and tools, such as the patient satisfaction survey, point to achieve a global efficiency (Al-Abri and Al-Balushi, 2014), tackling wastage arising from managerial and operational activities and making them as transparent as possible. In this sense, patient satisfaction surveys suffer not only from a high standardization that not grasp patients personal feelings, beliefs and dispositions, but also from a strictly orientation towards technical, medical-technical, logistics and management efficiency (Van den Broeck et al., 2012). In other words, being good-oriented these tools are just intended to ensure efficiency in providing high quality care and services.

Looking to patient satisfaction surveys according to a service-oriented approach led to their complete reconceptualization (Tab.1); thus, they should be conceived and developed in a participative way, involving different actors (e.g. patients, parents, peers, social agencies, etc.) in all steps ranging from the design towards the implementation and the final analysis. To do this, patient should be included in the Quality Management processes as an active and internal actor.

Table 1: Comparing a good and a service orientation towards health service.

<b>Good Orientation</b>	<b>Service Orientation</b>
Patient involvement	Actors engagement
Information system	Resource integration and sharing
Therapeutic care	Preventive care
Output	Outcome
Patients Health	Patients Well-being
Quality	Value of care
Patient satisfaction surveys	Value assessment measure, readiness assessment tools

Source: our elaboration.

#### **4. Implications**

Analyzing the influence that patient satisfaction surveys have at different levels of the health service ecosystem, the study revealed that these tools could play a disruptive influence on value co-creation and, consequently, on viability of the whole service ecosystem, “infecting” it. In particular, the review of literature (Naidu, 2009; Faezipour and Ferreira, 2013; Morris et al., 2013) pointed out that, in Italy, institutions still fail to moderate the interaction between health providers and patients, especially when intended to asses patient satisfaction. In fact, Italian NHS lacks of any institutionalized tool aimed at assessing patient satisfaction and giving the right emphasis to patient engagement in medical services. Assuming a service ecosystem perspective (Greer et al., 2016; Siltaloppi et al., 2016; Vargo and Lusch, 2016), institutions (e.g. governments, health agencies, etc.) still fails to mediate the interaction between actors, not offering those institutional arrangements according to which they should interact and share their resources to co-create value. Moreover, the

analysis of a specific tool aimed at assessing patient satisfaction such as the survey reveals that it remains good-oriented (Woodside, 2010; Gummesson, 2017). Consequently, this tool suffers from its high standardization, which do not offer a complete and punctual representation of patient disposition towards medical services and his/her real and personal perception of the experienced services and their quality. Consequently, health care managers should be aware about this limitation and its potential effect not only on the service they offer, but also on the well-being of all the actors that participate to the health service ecosystem.

In this sense, patients can have a negative disposition towards satisfaction surveys, because of their past (negative) experience that influence the way they fill them and contribute to make them not reliable or, in other words, “infective”. This implies that in emotionally stressful situations, patients tend to act irrationally (Ciasullo et al., 2017), having not clear how a disruptive behavior can affect their and other actors well-being and, assuming a service ecosystem perspective, constrain the co-creation of value. Consequently, to avoid this situation, patient satisfaction survey should be rethought embracing a service-oriented approach, in order to make them experienced in different moments and by the different actors involved in the care path.

In this sense, institutions should support the shifting of assessment tools towards a service orientation, in order to face and, consequently, prevent a general mistrust towards the health care organizations, supporting and fostering both shared initiatives and tools able to engage actors in pursuing the well-being of the whole health service ecosystem. Moreover, to avoid the emergence of chaotic and adverse situations, the implementation of informative systems (non-living actors) (Lusch et al., 2016; Wieland et al., 2016) should be encouraged to achieve a constant and real-time feedback about what patients and health providers directly experienced. Thus, this feedback should balance the influence of achieved information and the potential effect they can have on the whole ecosystem. Rethinking the tools designed for assessing patient satisfaction according to a service ecosystem perspective should make them as inclusive as possible. In this way these tools might be able to depict the role that each ecosystem actor (e.g. patient, families, peers, physicians, non-medical staff, etc.) plays in service encounter, highlighting, at the same time, the different moments in which the service exchange takes place, and going beyond the evaluation of the mere servicescape and the personnel involved in care paths. To do this, institutions should define specific institutional arrangements able to support patient empowerment, for example engaging them in different practices and moments of care experience in order to avoid the emergence of those information asymmetries that constrain value co-creation (Barile et al., 2014). In this sense, the assumption of a service ecosystem perspective can offer a holistic and systemic view of a complex service system such as the health care (Joiner and Lusch, 2016; Barile et al., 2016; Polese and Carrubbo, 2017), disclosing the dynamic interactions that

link ecosystem actors. To this end, institutions should define, promote and share those “rule of the game” able to institutionalize the disposition of health service ecosystem actors to interact and co-create value. Thus, this should prevent those disruptive or “infective” behaviors of both providers and patients rising from their lack of confidence, for example, with a tool such as satisfaction surveys good-dominant oriented.

## References

- Aarikka-Stenroos, L. and Jaakkola, E. (2012), “Value co-creation in knowledge intensive business services: A dyadic perspective on the joint problem solving processes”, *Industrial Marketing Management*, Vol. 41 No. , pp. 15-26.
- AHRQ, (2008). CAHPS: Assessing Health Care Quality from the Patient’s Perspective”. Available online at: <http://demo.westat.com/cahps-sun/cahps2005/content/cahpsOverview/CAHPS-ProgramBrief.htm> [Last Accessed 09/20/2012].
- Akaka, M. A., Vargo, S. L., & Lusch, R. F. (2013). The complexity of context: a service ecosystems approach for international marketing. *Journal of Marketing Research*, 21(4), 1-20.
- Al-Abri, R., & Al-Balushi, A. (2014). Patient satisfaction survey as a tool towards quality improvement. *Oman Med J*, 29(1), 3-7.
- Barile, S. (2011). Towards qualification of the concept of systemic complexity. *Sinergie rivista di studi e ricerche*, (79).
- Barile, S., & Polese, F. (2010). Smart service systems and viable service systems: Applying systems theory to service science. *Service Science*, 2(1-2), 21-40.
- Barile, S., Lusch, R., Reynoso, J., Saviano, M., & Spohrer, J. (2016). Systems, networks, and ecosystems in service research. *Journal of Service Management*, 27(4), 652-674.
- Barile, S., Saviano, M., & Polese, F. (2014). Information asymmetry and co-creation in health care services. *Australasian Marketing Journal (AMJ)*, 22(3), 205-217.
- Begun, J. W., Zimmerman, B., & Dooley, K. (2003). Health care organizations as complex adaptive systems. *Advances in health care organization theory*, 253, 288.
- Brownie, S., Thomas, J., McAllister, L., & Groves, M. (2014). Australian health reforms: enhancing interprofessional practice and competency within the health workforce. *Journal of interprofessional care*, 28(3), 252-253.
- Chahal, K., & Eldabi, T. (2008, December). Applicability of hybrid simulation to different modes of governance in UK healthcare. In *Simulation Conference, 2008. WSC 2008. Winter* (pp. 1469-1477). IEEE.

- Chakraborty, S., Bhattacharya, S., & Dobrzykowski, D. D. (2014). Impact of supply chain collaboration on value co-creation and firm performance: a healthcare service sector perspective. *Procedia Economics and Finance*, 11, 676-694.
- Chandler, J. D., & Lusch, R. F. (2015). Service systems: a broadened framework and research agenda on value propositions, engagement, and service experience. *Journal of Service Research*, 18(1), 6-22.
- Chandler, J. D., & Vargo, S. L. (2011). Contextualization and value-in-context: How context frames exchange. *Marketing Theory*, 11(1), 35-49.
- Cianfrani, C. A., Tsiakals, J. J., & West, J. (2009). *ISO 9001: 2008 Explained*. ASQ Quality Press.
- Ciasullo, M. V., Ciasullo, M. V., Cosimato, S., Cosimato, S., Palumbo, R., & Palumbo, R. (2017). Improving health care quality: the implementation of whistleblowing. *The TQM Journal*, 29(1), 167-183.
- Committee on Redesigning Health Insurance Performance Measures, Payment, and Performance Improvement Programs (2006). *Performance Measurement: Accelerating Improvement*. National Academies Press, Washington, D.C.
- Faezipour, M. & Ferreira, S. (2011). Applying Systems Thinking to Assess Sustainability in Healthcare System of Systems, *Int. J. System of Systems Engineering*, 2(4), 290-308.
- Faezipour, M., & Ferreira, S. (2013). A system dynamics perspective of patient satisfaction in healthcare. *Procedia Computer Science*, 16, 148-156.
- Frow, P., McColl-Kennedy, J. R., & Payne, A. (2016). Co-creation practices: Their role in shaping a health care ecosystem. *Industrial Marketing Management*, 56, 24-39.
- Frow, P., McColl-Kennedy, J. R., Hilton, T., Davidson, A., Payne, A., & Brozovic, D. (2014). Value propositions: A service ecosystems perspective. *Marketing Theory*, 14(3), 327-351.
- Gell-Mann M. (1995). What is complexity. *Complexity*, 1(1), 16-9.
- Graham, B., Green, A., James, M., Katz, J., & Swiontkowski, M. (2015). Measuring patient satisfaction in orthopaedic surgery. *J Bone Joint Surg Am*, 97(1), 80-84.
- Greer, C. R., Lusch, R. F., & Vargo, S. L. (2016). A service perspective. *Organizational Dynamics*, 1(45), 28-38.
- Gummesson, E. (2006). Many-to-many marketing as grand theory. *The service-dominant logic of marketing: Dialog, debate, and directions*, 339-353.
- Gummesson, E. (2017), *Case Theory in Business and Management: Reinventing Case Study Research*. London: SAGE.
- Gupta, P. (2006). Beyond PDCA-a new process management model. *Quality progress*, 39(7), 45.

- Hernandez, H. (2010). Quality audit as a driver for compliance to ISO 9001: 2008 standards. *The TQM Journal*, 22(4), 454-466.
- Jackson, D. J. (2011). What is an innovation ecosystem. *National Science Foundation, Arlington, VA*.
- Jean-Pierre, P., Fiscella, K., Freund, K., Clark, J., Darnell, J., Holden, A., Patierno, S. (2010). Structural and Reliability Analysis of a Patient Satisfaction with Cancer-Related Care Measure. *Cancer*, 117.
- Joiner, K. A., & Lusch, R. F. (2016). Evolving to a new service-dominant logic for health care. *Innovation and Entrepreneurship in Health*, 3(3), 25-33.
- Kennedy, G. D., Tevis, S. E., & Kent, K. C. (2014). Is there a relationship between patient satisfaction and favorable outcomes?. *Annals of surgery*, 260(4), 592.
- Krause, K. L. (2012). Addressing the wicked problem of quality in higher education: Theoretical approaches and implications. *Higher Education Research & Development*, 31(3), 285-297.
- Lipsitz, L. A. (2012). Understanding health care as a complex system: the foundation for unintended consequences. *JAMA*, 308(3), 243-244.
- Lochman, J.E. (1983). Factors Related to Patient Satisfaction with Other Medical Care, *Journal of Community Health*, 9(2), 91-109.
- Lovelock, C.H. (2000). *Service marketing*, (4th ed.). Prentice Hall International, NJ.
- Lusch, R. F., & Vargo, S. L. (2014). *The service-dominant logic of marketing: Dialog, debate, and directions*. Routledge, London.
- Lusch, R. F., Vargo, S. L., & Gustafsson, A. (2016). Fostering a trans-disciplinary perspectives of service ecosystems. *Journal of Business Research*, 69(8), 2957-2963.
- Lusch, R., & Wu, C. (2012). A service science perspective on higher education: Linking service productivity theory and higher education reform. *Center for American Progress, August*.
- Mainzer K. Thinking in complexity. New York: Springer; 1997.
- Mele, C., Pels, J. and Polese, F. (2011), "A brief review of systems theories and their managerial applications", *Service Science*, Vol. 2 No. ½, pp. 116-124.
- Morris, B. J., Jahangir, A. A., & Sethi, M. K. (2013). Patient satisfaction: an emerging health policy issue. *Am Acad Orthop Surg*, 6, 7-9.
- Mullan, F. (2001). A Founder of Quality Assessment Encounters A Troubled System Firsthand. *Journal for Healthcare Quality Volume*, 23(2), 40-43.
- Naccarella, L., Greenstock, L., & Brooks, P. (2012). A framework to support team-based models of primary care within the Australian health care system. *Med J Aust*, 1, 22-5.

- Naidu, A. (2009). Factors Affecting Patient Satisfaction and Healthcare Quality, *International Journal of Health Care Quality Assurance*, 22(4), 366-381.
- Pascoe, G.C. (1983). Patient Satisfaction in Primary Health Care: A Literature Review and Analysis, *Evaluation and Program Planning*, 6, 185-210.
- Plé, L., & Chumpitaz Cáceres, R. (2010). Not always co-creation: introducing interactional co-creation of value in service-dominant logic. *Journal of Services Marketing*, 24(6), 430-437.
- Plsek, P. E., & Greenhalgh, T. (2001). The challenge of complexity in health care. *BMJ: British Medical Journal*, 323(7313), 625.
- Polese, F., & Capunzo, M. (2013). The determinants of translational medicine success-A managerial contribution. *Translational Medicine@ UniSa*, 6, 29.
- Polese, F., & Carrubbo, L. (2017). *Eco-sistemi di servizio in sanità* (Vol. 65). Giappichelli Editore, Torino.
- Polese, F., Mele, C., & Gummesson, E. (2014). Addressing complexity and taking a systemic view in service research. *Managing Service Quality: An International Journal*.
- Prahalad, C. K., & Ramaswamy, V. (2004). Co-creating unique value with customers. *Strategy & Leadership*, 32(3), 4-9.
- Rakhmawati, T., Sumaedi, S., & Judhi Astrini, N. (2014). ISO 9001 in health service sector: a review and future research proposal. *International Journal of Quality and Service Sciences*, 6(1), 17-29.
- Ransom, S. B., Joshi, M. S., & Nash, D. B. (2005). *The Healthcare quality book Vision, Strategy, and Tools*. Health Administration Press, Chicago.
- Runciman, B., Merry, A. & Walton, M. (2007). *Safety and Ethics in Healthcare: A Guide to Getting It Right*, Ashgate Publishing Limited, England.
- Siltaloppi, J., Koskela-Huotari, K., & Vargo, S. L. (2016). Institutional Complexity as a Driver for Innovation in Service Ecosystems. *Service Science*, 8(3), 333-343.
- Sokovic, M., Pavletic, D., & Pipan, K. K. (2010). Quality improvement methodologies—PDCA cycle, RADAR matrix, DMAIC and DFSS. *Journal of Achievements in Materials and Manufacturing Engineering*, 43(1), 476-483.
- Taillard, M., Peters, L. D., Pels, J. and Mele, C. (2016), “The role of shared intentions in the emergence of service ecosystems”, *Journal of Business Research*, No. 69, pp. 2972–2980.
- Taylor, M. J., McNicholas, C., Nicolay, C., Darzi, A., Bell, D., & Reed, J. E. (2013). Systematic review of the application of the plan–do–study–act method to improve quality in healthcare. *BMJ quality & safety*, bmjqs-2013.
- Tricker, R. (2014). *ISO 9001: 2008 for Small Businesses*. Routledge, London.

- Van den Broeck, U., Spiessens, C., Dancet, E., Bakelants, E., Vrancken, A., Demyttenaere, K., ... & D'Hooghe, T. (2012). Patient evaluation of infertility management in an ISO 9001: 2008-certified centre for reproductive medicine. *Reproductive biomedicine online*, 24(3), 293-300.
- van den Heuvel, J., Bogers, A. J., Does, R. J., van Dijk, S. L., & Berg, M. (2006). Quality management: does it pay off?. *Quality Management in Healthcare*, 15(3), 137-149.
- Vargo, S. L., & Lusch, R. F. (2016). Institutions and axioms: an extension and update of service-dominant logic. *Journal of the Academy of Marketing Science*, 44(1), 5-23.
- Ware, J.E. Jr. & Snyder, M.K. (1975). Dimensions of Patient Attitudes Regarding Doctors and Medical Care Services, *Medical Care*, 13(8), 669- 82 (1975).
- Wickramasinghe, N., Chalasani, S., Boppana, R.V. & Madni, A.M. (2007). Healthcare System of Systems, IEEE International Conference on System of Systems Engineering (SoSE), April 16-18, 1-6, San Antonio, TX.
- Wieland, H., Koskela-Huotari, K., & Vargo, S. L. (2016). Extending actor participation in value creation: an institutional view. *Journal of Strategic Marketing*, 24(3-4), 210-226.
- Wieland, H., Polese, F., Vargo, S., & Lusch, R. (2012). Toward a service (eco) systems perspective on value creation.
- Woodside, A. G. (2010). *Case study research: Theory, methods and practice*. Emerald Group Publishing.