Balanced Centricity in the Higher Education Service Ecosystem

María J. Quero and Rafael Ventura

Abstract Universities are a social catalyst that have a big responsibility as connector of heterogeneous actors and producer of value for individuals and society. In the last 30 years the HE institutions have undergone a great transformation, modifying their missions, and this process has been accompanied with a recent increase of academic contributions that analyze the role of universities as central drivers of knowledge-based economies. The present chapter makes a theoretical approach to the HE context as ecosystem and find the actors, linkages and institutions that would improve the management of HE organizations through an open approach, in coherence with the growing open innovation trend in which active and competitive organizations are embedded. We develop the Balanced Centricity (BC) HEIs-University Ecosystem model that identifies the engaged actors on the HE context and balanced relationships among them as the core of the system. Finally, we make some advice for management and comment on future research trends.

Keywords Balanced Centricity · HEIs-University ecosystem · Engaged actors · Linkages · Institutions

1 Introduction

The present chapter sets out a key challenge for Higher Education Institutions (HEIs) embedded within modern societies: that of bringing open innovation (Chesborough, 2003, 2019) into existing processes, thereby providing a fresh perspective to allow their appropriate evolution. In this context, HEI-Universities emerge as a social catalyst with clear responsibilities in connecting heterogeneous actors and as producers of value for individuals and for society. The literature on HE management has seen a parallel development of this line of enquiry. Ever since Etzkowitz (1983) first used

M. J. Quero (✉) · R. Ventura
University of Málaga, Málaga, Spain
e-mail: mqg@uma.es

R. Ventura
e-mail: rventura@uma.es

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the term "entrepreneurial university", the literature has included a growing recognition of the need for models that fit the complex reality of HE. Over the last 30 years, HEIs have undergone a great transformation to modify their missions (Berbegal-Mirabent & Ribeiro-Soriano, 2015; Polese et al., 2021), and this process has been accompanied by a recent increase of academic contributions to analyse the role of universities as central drivers of knowledge-based economies (Audretsch, 2014; Etzkowitz, 2016; Schlegel et al, 2022). Recently, Kliewe et al. (2019b) introduced the perspective of the "engaged and entrepreneurial university", in order to rediscover the concept of "engaged", in an interesting modern approach to managing relationships among actors. In response, we identify a parallel path to the S-D logic ecosystem approach, and shed light on the complex reality in which "third-generation universities" must operate. Taking the S-D logic as the theoretical framework, we develop models and strategies to help design the process. Previous chapters have considered the S-D logic perspective on HE and value co-creation as an innovative approach. We integrate these perspectives to develop a Balanced Centricity HEI-University Ecosystem theoretical model where the resources of both operand and operant (Shi & Shi, 2022; Constantin & Lusch, 1994; Campbell, O´Driscoll, & Saren, 2013) are managed within new institutions that bring organizational innovation into the HE context. They do this through the engagement of all actors in the same sphere by implementing a mechanism of open innovation ("outside-in and inside-out") that relies on the evolution and self-adjustment of the ecosystem (Vargo et al., 2022; Chesborough, 2020; Vargo & Lusch, 2017). In fact, the interconnected system in which HE is embedded makes this perspective mandatory for any Higher Education Institution (HEI) in today's open economy.

According to Tronvoll (2017), general systems theory emphasizes an open, socially constructed dynamic system that can be theoretically decomposed into actors, linkages and context. We use the framework provided by this perspective to propose HEIs/Universities as ecosystems in which economic and social participants (actors) are linked in networks and connected in a context (institutions and institutional arrangements).

The remainder of the present chapter is organized as follows: first, we present a theoretical approach to the HE context as an ecosystem. Then, we undertake a literature review to find the actors, linkages and institutions that could improve the management of HE organizations through an open approach, in coherence with the growing trend of open innovation in which most active and competitive organizations are embedded. We develop the Balanced Centricity (BC) HEI-University Ecosystem model, which identifies the engaged actors in the HE context together with the relationships among them. Finally, we offer some advice for managers and make recommendations for future research.

2 Managing HEIs as an Ecosystem

Vargo and Lusch (2011, 2017) introduced the service ecosystem perspective, which provides a framework for studying how value co-creation takes place among all actors involved. All actors integrate resources and engage in service exchange, and institutions and institutional arrangements endogenously generate nested and interlocking service ecosystems (Vargo & Lusch, 2016). The service ecosystem perspective has developed alongside other theories of systems (i.e., smart service systems and viable service systems, developed by Barile and Polese (2010), and service systems (re-) formation, by Vargo and Akaka (2012). These new perspectives relate to a common aim: to understand how service systems and eco-systems develop self-innovating processes automatically, which change continuously for the benefit of the system and all the actors involved. We explore the details of the process of self-adjustment; specifically our aim is to depict how actors, linkages and the HE context (institutions and institutional arrangements) are the basis for designing an open HEI-University, capable of innovating and generating innovation in the global society.

Applied to HEIs, the ecosystem perspective implies the need to zoom out from traditional dyadic and discrete transactions, given that in the HE context interactions do not take place in isolation, but rather via a network of actors of which the dyad is merely one element. These networks can be seen in various levels of aggregation:

HEI Micro-context: At this level, there is a direct service-for-service exchange. This is the traditional "classic" dyad referred to by Gummesson (2008a, 2008b, p. 45), and is a two-party relationship in which a direct service-for-service exchange takes place (Chandler & Vargo, 2011; Madhvaram & Hunt, 2008; Barney et el., 2001). Díaz-Méndez and Gummesson (2012) focus on teaching as a main aim of HE from a co-creation perspective. From a broad perspective, the literature on HE also considers this as the exchange of resources of a university with industry, and the development of University-Industry linkages (UILs). Plewa et al. (2019, pp. 128) highlight the need to develop more nuanced research in this area: "it remains challenging for universities and firms to work together due to goal conflicts and discrepancies in expectations and working practices".

HEI Meso-context: Here, there is an indirect service-for-service exchange through a triad. Apart from the direct service received, there is some interaction between actors who receive a service from the same provider (Chandler & Vargo, 2011; Grönroos, 2006; Gummesson, 2008a, 2008b). This context represents a strategic part of the design of the HE service ecosystem, in that both the kind of triad and the institutionalization of the resource links among actors are strategic factors underpinning the model of the HE ecosystem to be designed. Ideally, we propose that this triad should be a coalition (Siltaloppi & Vargo, 2017), in which actor engagement is achieved through the design of incentives and linkages that allow us to reach "economies of actor engagement" through the improvement of resource density and hence value creation and innovation (Storbacka, 2019). One of the most widely cited authors on innovation and stakeholders in the modern university is Etzkowitz

(2003a, 2003b, 2008, 2012), who refers to the "Triple Helix" to identify a triad (university—industry—government) in reference to HE management.

HEI Macro context: the service now becomes more complex, because it includes direct and indirect services, creating a network (Gummesson, 2008a, 2008b; Vargo & Lush, 2017). In this network, actors, dyads, and triads create synergy among multiple simultaneous direct and indirect service-for-service exchanges (Achrol & Kotler, 2012; Närvänen et al., 2014). Different kinds of actors with different interests co-create value in order to see their project delivered. At this level, it is important to design outside-in and inside-out strategies and institutional arrangements that allow for innovation to arise through actor engagement in complex systems. The HEI macro context is characterized by the emergence and institutionalization of resource linkages that improve resource density, and hence value creation in a market (Storbacka, 2019). The involvement of actors increases at this stage, resulting in the "quadruple helix" proposed by some authors (Park, 2014; Carayannis & Campbell, 2009) or the "quintuple Helix" proposed by others (Carayannis & Rakhmatullin, 2014); these ideas aim to capture the increasing need to adopt an ecosystem perspective, recognizing the complex reality in which HE institutions are embedded. The European Commission (2018) echoes this trend in its injunction that "innovation clusters that link up companies, universities, startups, investors and local governments must be further developed and linked up across Europe". Carayannis and Campbell (2019, pp. 52) propose the "Smart Quintuple helix" to "make it clear that the implementation of thought and action in sustainability will have a positive impact on society as a whole".

HEI Meta-layer of context: The three levels of the ecosystem are not fixed, being relative levels of interaction that evolve and change over time (Candler & Vargo, 2011; Vargo et al., 2015). Vargo and Lusch (2016) use the three levels to describe how institutions and institutional arrangements in service ecosystems are jointly generated by and enable and constrain value co-creation among actors (Lusch et al., 2016). In this sense, changes in the institutions and subsequent institutional arrangements can generate macro—meso—micro interaction, generating changes from the micro level (i.e., bottom-up), as well as top-down (Lusch et al., 2016). Chandler et al. (2019, pp. 77) note that "the meta-space is especially important for innovation".

Structurally, these networks reflect what the S-D logic captures in axiom 3 "all social and economic actors are resource integrators", axiom 4 "value is always uniquely determined by the beneficiary", and axiom 5 "value co-creation is coordinated through actor-generated institutions and institutional arrangements" (Vargo & Lusch, 2016, pp. 8). From this perspective, HEI ecosystems can be conceptualized as *holistic experiences where the benefit (value) realized by a beneficiary (i.e. the student, the firm, the society, etc.) does not occur in isolation but rather through the integration of resources from many actors.*

The S-D logic ecosystem represents an important contribution to HEI management:

(a) Connections among actors represent service-for-service exchange, rather than just connections of resources. Operand and operant resources flow in a continuous process of value co-creation.
(b) Engaged actors are defined not only in terms of this service provision (resources applied for benefit) but also in terms of the resource-integration activities afforded by the service exchange.
(c) The network has a purpose as a partial function of collective wellbeing.
(d) The network is complex and in a continuous process of self-organization. This characteristic is crucial for service ecosystems to innovate and self-adjust though the work of engaged actors.
(e) Institutions, institutional arrangements, and institutional work offer a meta-space (or meta-layer) that gives a temporal dimension to the service ecosystem (Chandler & Vargo, 2011). Chandler et al. (2019, p. 77) explain about this space that "because institutional work often involves belief formulation, learning or knowledge sharing, for example, it is important to account for the time needed for beliefs to change or actors to learn" (Fig. 1).

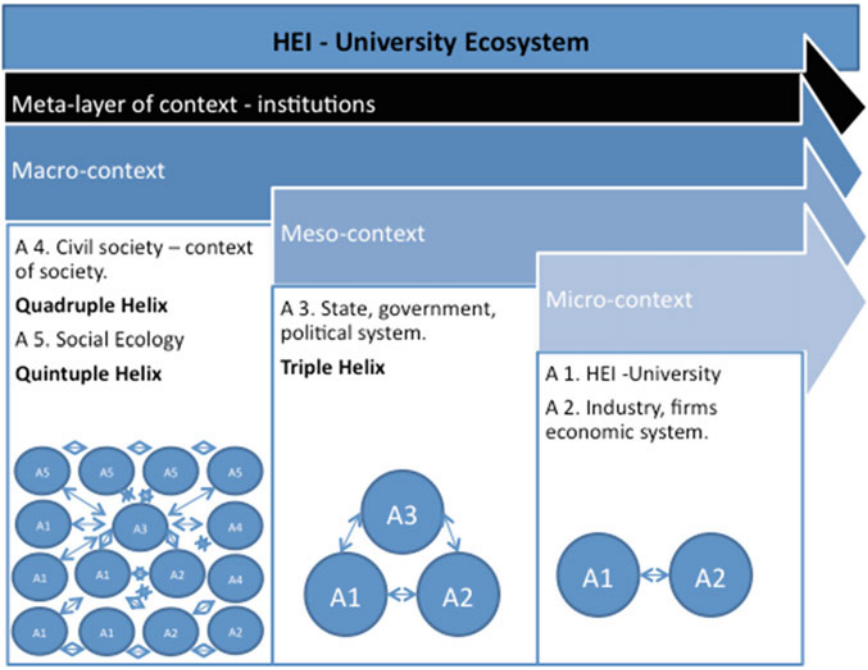

Fig. 1 HEI—University ecosystem. *Source* The authors

3 The Role of Institutions in the Context of a HEI-University Ecosystem

Managing HEIs as an ecosystem involves the management of institutions as a cornerstone in the process. Following Vargo and Lush (2016, pp. 161), a service ecosystem is "relatively self-contained, self-adjusting system of resource-integrating actors connected by shared institutional arrangements and mutual value creation through service exchange". In HE, once the ecosystem has been designed, it is strategically important to design the institutions to govern relationships among actors, and to foster linkages that can facilitate or inhibit the exchange of resources and actor disposition (value co-creation).

At this point, some clarification is needed on the term "institution". Different disciplinary perspectives have resulted in a variety of understandings (Sociology, Economics, Political Science, etc.) as shown in Table 1. Representatives of the sociological and economic approaches have pointed to the consideration of institutions as the basis of stability and meaning in social life through the specification of norms, rules, and cultural-cognitive beliefs (Scott, 2014). As stated by North (1990, p. 3–5), institutions are considered the "rules of the game", while organizations and actors are "players". From the same broad perspective, Ostrom (2005, p. 3) conceives institutions as the prescriptions used by humans "to organize all forms of repetitive and structured interactions including those within families, markets, firms and governments".

From the S-D logic perspective, the role of institutions has varied over time and has recently increased in importance, and should now be considered fundamental to the processes of value co-creation. Vargo and Lusch (2016, p. 18) refer to an institution as "a relatively isolatable, individual 'rule' (e.g., norm, meaning, symbol, law, practice)", taking "institutional arrangements" to refer to "inter-related sets of institutions that together constitute a relatively coherent assemblage that facilitates coordination of activity in value co-creating service ecosystems".

Table 1 Institutional concepts

Definition	Author
"Rules of the game"	North (1990, p. 3)
"Broadly defined, institutions are the prescriptions that humans use to organize all forms of repetitive and structured interactions including those within families, markets, firms, and governments"	Ostrom (2005, p. 3)
"Rules, norms and cultural-cognitive beliefs are central ingredients to institutions"	Scott (2014, p. 57)
"Relatively isolatable, individual rule"	Vargo and Lusch (2016, p. 18)
"Institutions represent the "rules" of resource integration and coordinate actors´ efforts to make joint value co-creation possible"	Kostela-Huotari and Vargo (2016, p. 169)

We adopt the S-D logic perspective in order to understand institutions as rules or norms that can be established strategically within contexts (i.e., HEIs, enterprises, society) with the aim of achieving a specific desired state (i.e., improving strategic benefit for all actors involved in an HEI-University ecosystem).

Following Scott (2014) and Bo Edvardsson et al. (2014), three institutional pillars can be identified:

- Regulative pillars comprise all formal rules that regulate and consequently enable or constrain the behaviour of actors.
- Normative pillars consist of norms (which specify how certain things should be done), values (what is desired), and standards through which behaviour and structure can be evaluated.
- Cognitive pillars are related to actors´ perceptions of reality. The cultural context determines actors' way of behaving.

Lawrence and Suddaby (2006, p. 215) develop an interesting concept related to institutions, namely "institutional work", defined as "the purposive action of individuals and organizations aimed at creating, maintaining and disrupting institutions". Combining this concept with the service ecosystem perspective, Kostela-Huotari et al. (2020, 2016) highlight the efforts of actors to break, make, and maintain institutionalized rules of resource integration at multiple levels of the institutional context (micro, meso, and macro). Using an empirical approach to analyse four organizations in all, they identify direct and indirect effects at every level of the ecosystem. According to Kostela-Huotari et al. (2016), innovation is no longer the result of the work of an organization; its collaborative nature has been widely recognized, and it requires the joint action of a network of actors (Chandler et al., 2019; Lusch & Nambisan, 2015). Vargo et al. (2015, p. 71) state that "The link between business models, for example, and their embedded institutional prescriptions, and user subscriptions, needs a much deeper conceptual and empirical investigation". In the same sense, Lusch and Vargo (2017, pp. v), posit that "Relatively recent trends in innovating practices unequivocally demonstrate that theory is once again lagging practice, furthering validation is needed. Some of the more contemporary practices that lag theory include: open innovation, user-led innovation, co-creation, wisdom of crowds, and lean Start-Up".

The present chapter builds on this gap by bringing the S-D logic approach to HEI – University ecosystems, in order to offer a theoretical model that fits the new challenging reality of these organizations. With this aim, and following Tronvoll (2017), we propose that HEI ecosystems:

- Provide a context (institutions and institutional arrangements).
- Develop linkages to organize networks of actors (social and collective relationships), and
- Bring actors together (economic and social participants).

4 The Context: Balanced Centricity (BC)

The concept of Balanced Centricity (BC) was developed by Gummesson (2008a, p. 17) as an intention to manage a complex reality in recognition that "all the stakeholders have the right to satisfy their needs and wants". In a later publication, Gummesson (2008b, p. 328) continued the evolution of the concept adding that "It means that long-term relationships and well-functioning markets should build on the needs and wants of many stakeholders: customers, employees, suppliers, intermediaries, the media, governments and more".

From the perspective of S-D logic, BC can be considered an institution and the basis for developing institutional arrangements. Following Scott (2014) and Edvardsson (2014) it can be considered a cognitive pillar due to its relationship with an actor´s perception of reality, and it requires a cultural context that facilitates the behaviour of that actor. From the perspectives of Lawrence and Suddaby (2006) and Kostela-Huotari et al. (2016), we note that BC can also be considered an "institutional work", because it can break, make, and maintain institutionalized rules of resource integration at each level of an ecosystem. Table 2 contains a summary of the perspectives of BC.

As suggested by Hillebrand et al. (2015), BC constitutes a challenge to customer centricity (CC), which has hardly been addressed at all in the marketing literature. Their contribution (the "stakeholder marketing perspective") also breaks with CC in that "customers cannot be viewed in separation of the rest of the stakeholders network and that the value perceptions and interests of other stakeholders may sometimes carry an equal or greater weight". The stakeholder marketing perspective has also been adopted by Kliewe and Baaken (2019a, 2019b, p. 8), who consider that the new generation of entrepreneurial and engaged universities have changed in the following respects:

- From technology transfer to knowledge transfer.
- From technology push to market pull.

Table 2 Perspectives of balanced centricity

Perspective	Authors
Institution	Vargo and Lusch (2016)
Institutional arrangement	Vargo and Lusch (2016) Quero, Díaz-Mendez and Gummesson (2020) Quero and Ventura (2015)
Cognitive pillar	Scott (2014) and Edvardsson et al. (2014)
Institutional work	Lawrence and Suddaby (2006) and Kostela Huokari et al. (2016)

– From building structures to a broader change: "…today, universities acknowledge that being entrepreneurial and actively contributing to the (regional) innovation ecosystem requires a broader change in the university, including strategy, leadership, culture, support services, etc."
– Professionalization of the field.
– Recognition of people and relationships, rather than technology, as drivers of the process.
– Shift from lip service and "matching the numbers" to real impact.

As Audretsch (2014) suggests, the fact that more industries are focusing on knowledge means that the position of the university in society has changed. Where the emphasis was once on manufacturing, this has altered with the increased use of digital technologies (Gerguri-Rashiti et al., 2017). Ratten (2017) notes that universities need to apply the knowledge they generate such that it has an economic or social impact, and try to facilitate knowledge spillover by integrating campus services within the broader community.

We propose a BC institutional approach that matches the demand of the so-called third-generation university, giving all actors a parallel role in an open interconnected network. This process facilitates the emergence of innovation as long as resources are exchanged easily (i.e., through UILs) and provided that actor engagement is improved through the design of strategies to allow for economies of actor engagement through the improvement of resource density, leading to the emergence of innovation (Storbacka, 2019). This approach requires a redefinition of actors as "engaged actors", of institutions as "BC institutions" and of linkages as "BC linkages", as the conditions necessary to build a BC HEI-University Ecosystem.

5 Engaged Actors in the HEI-University

The conceptualization of the HEI-University as "engaged" does not have much of a tradition in the literature, but its connections with the "entrepreneurial university" generate synergies that have not yet been identified fully. As a result, as suggested by Moussa et al. (2019, pp. 20): "lost opportunities with respect to making use of potential synergies, as similarities to be identified between the two concepts, foster research results and methods from the entrepreneurial university to be applied for a better understanding of stakeholders and their interaction in the engaged university and vice-versa".

Recent literature has given the actor key roles as both resource keeper and value creator in networks, a fact that needs to be considered in the HE context, given that the third-generation university builds on the work of actors (operant resources) and not on technology (operand resources). We adopt the conceptualization of actor engagement from Brodie et al. (2019, pp. 183) as "a dynamic and iterative process, reflecting actors' dispositions to invest resources in their interactions with other connected actors in a service system".

In parallel with the highly recognized ideas in the entrepreneurial university of "triple/quadruple/quintuple" originally coined by Etzkowitz (2003a, 2008, 2016), Claus et al. (2018) developed a promising line of academic research on the entrepreneurial university, which could be of use in our ecosystem management perspective. The stakeholders in question are: (1) the entrepreneurial/engaged university itself, (2) academics, (3) the economy and society, (4) new ventures, (5) existing firms, (6) students, and (7) administrators and coordinators. Using a similar actor-based approach, from the S-D logic perspective, Ventura et al. (2020, pp. 316) identify thirteen actors in a model of "provider-driven radical innovation network structure of university living lab", which conceptualizes the HEI-University as a Hub, comprising: (1) the university itself, (2) technology parks, (3) social change makers, (4) entrepreneurial ecosystems, (5) entrepreneurial communities, (6) start-ups, (7) consultants/mentors, (8) public agents, (9) small and medium-sized enterprises, (10) financing actors, (11) incubators/accelerators, (12) corporations, and (13) other universities. The conceptualization of HEI-University as a hub is an interesting insight, as it allows the essence of this concept to be recovered, in line with its key aims, in which its active dynamism has a positive relationship with the "economies of actor engagement" (Storbacka, 2019) through the improvement of resource density and actors' work, in a process resulting in innovation and self-adjustment.

6 The Balanced Centricity HEI-University Ecosystem Model

As suggested by Lusch et al. (2016, p. 2959) "an institutional narrative helps to increase understanding of the role of institutional arrangement in service ecosystems". Adopting this perspective, BC can be considered to be an institution that allows for the development of institutional arrangements in organizations, driving towards innovation in HEIs. However, as described, linkages among actors are considered a key factor. Management literature refers to these connections as network ties. Such is the importance attributed to network ties that recent research connects them to organizational radical innovation in HEIs (Ventura et al., 2020).

In a growing open economy, the role of linkages (or network ties) is considered a key factor in innovation (Capaldo, 2007; Leminen et al., 2016; Mahmood et al., 2011). Organizations aiming to develop radical innovation require access to dissimilar knowledge (Greve, 2007). In this context, HEI-Universities are in an excellent position to bring about interactions in an innovative way, facilitating innovation through new knowledge (Rajalo & Vadi, 2017). Hao and Feng (2016) propose that buyer–supplier ties can be particularly useful for providing firms with access to new knowledge. Lay and Moore (2009) identify two types of business networks—collaborative and coordinated—and argue, in coherence with the S-D Logic perspective (Vargo & Lusch, 2016, 2017) that collaborative networks are characterized by high complexity and a focus on innovation, and are organized in a hub. Lazer and Friedman

(2007) posit that centralized networks are effective in coordinating simple problems, with decentralized networks being better suited to more complicated problems. Table 3 contains a classification of network ties.

Approaches to linkages are heterogeneous, as seen in the literature, given the need to adapt general concepts to a specific context. As explained by Chandler and Vargo (2011), it is necessary to specify a context prior to describing how value (innovation) can arise. Ventura et al. (2020) describe a model in the context of University innovation, where the University can be considered a hub that coordinates the hunters (usually from the industrial sector) with the gatherers (university knowledge: academic), to achieve innovation. Connections are developed through new linkages (network ties) founded on new institutions (BC) that facilitate open innovation. From this perspective, we observe an evolution in Universities in that they are changing their traditional position of brokerage (*tertius gaudens*), in which structural holes had become apparent, and are now seeking to achieve innovation in an open economy through so-called *tertius iungens*, based on open innovation and value co-creation. In Fig. 2, actors linked together within the HEI-University ecosystem are connected in a BC HEI-University Ecosystem model.

The BC HEI-University ecosystem a model of University is built as an innovation hub, which relies on BC as an institution and an institutional arrangement in order to involve all actors engaged in the ecosystem connected through BC linkages that foster actor interaction and "institutional work". It provides the context for actors to break, make, and maintain institutionalized rules of resource integration at multiple levels in the given context.

Linkages (network ties) are the result of institutional change, which provides a distributed provider-driven network structure (following Leminen et al., 2016, pp. 748). The means by which new linkages develop has evolved from a brokerage (*tertius gaudens*) structure, which was a barrier to innovation through new formulas of value co-creation in an open innovation organizational model, to a *tertius iungens* strategy, based on cooperation.

Table 3 Classification of linkages (network ties)

Types	Context	Author
– Buyer–supplier ties – Peer collaboration ties – Equity ties	Theoretical approach	Hao and Feng (2016)
– Excellent collaborators – Promising collaborators – Modest collaborators	University-industry	Rajalo and Vadi (2017)
– Academic engagement – Academic involvement in commercialization	University-industry	Perkman et al. (2013)
– *Tertius iungens* ("the third who joins") – *Tertius gaudens* (brokerage)	B2B automobile	Obstfeld (2005, p. 100)
– Hunters – Gatherers	B2B Several	Leifer et al. (2001)

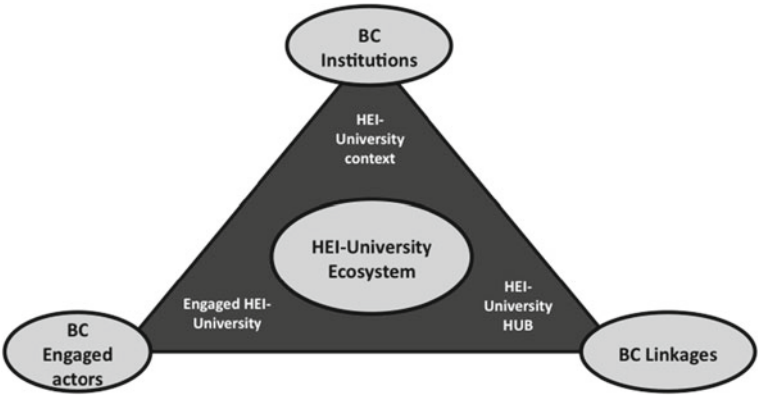

Fig. 2 BC HEI-University ecosystem model. *Source* The authors

The BC HEI-University ecosystem brings the BC institution to the HE context in proposing the design of an open university with multiple interconnected actors who exchange operant and operand resources for non-hierarchical and flexible linkages that allow resources to be liquified (Lusch et al., 2010, Nenonen, 2019), expanding to the maximum the scope of resources that can be accessed and utilized by all actors.

One particular line of research is the evolution of the BC HEI-University ecosystem towards the conceptualization of the organizational perspective of innovation and the new "market shaping" perspective. In this sense, Nenonen et al. (2019, pp. 620) note that "market shapping is rooted in a firm´s ability to perceive the wider network of organizations and change it to the advantage of multiple beneficiaries (…)". Although the new literature on market shaping is framed on firms, we are working on the development of the network from the BC HEI-University ecosystem perspective, where strategies for shaping the BC HEI-University ecosystem are the tools for managing these open innovative structures. We are enthusiastic proponents of the need for active transformation of the university, according to the considerable level of knowledge available. As noted by Chesborough (2020) on modern relationships in the new open reality, this perspective nevertheless requires the cooperation of as many countries and actors as possible. From the perspective of Fehrer et al. (2020), the HEI-University could (and should) benefit from the development of market-shaping dynamics resulting from the interplay between actor engagement and institutional work.

7 Discussion

The BC HEI-University ecosystem model as proposed conceptualizes the third-generation university as a big network in which new theories of management highlight the need for evolution according to trends in the open economy. This represents a

considerable challenge for universities, as it represents a change to the rules and institutions that have traditionally been adopted.

The BC HEI-University model represents a contribution to the theory in this area, with some useful practical conclusions for practice.

7.1 Theoretical Roots and Contributions

The theoretical aims of the present chapter are ambitious, in bringing complex realities to a model in which universities are embedded, thereby offering management tools required by the new reality. First, the HEI-University ecosystem is aimed at bringing together actors by considering the interactions that take place among them in terms of:

- The *HE Micro-context*: in which HEI-University and Industry linkages (UIL) demand deeper knowledge concerning the relationships among stakeholders, as highlighted by Plewa et al. (2019).
- The *HE Meso-context*: where the classic triple helix (triad) assumes a position in a relationship that aims to be collaborative (*tertius iungens*), following Siltaloppi and Vargo (2017). Skute (2019) also highlights the need to develop research in the HEI-University context from the ecosystem perspective, addressing the role of the actors embedded in this ecosystem and the sub-dynamics of economic exchange and institutional control within the Triple Helix model.
- The *HE Macro-context*: in which civil society (quadruple helix) and social ecology (quintuple helix) interact. At this level of aggregation, there is a demand to study strategic design in terms of how to orchestrate and leverage capabilities through the work of actors to the benefit of the system (BC strategies). In this sense, Fantauzzi (2019, pp. 1) suggests the need to reconceptualize the role of the University, and refers to "social engagement" as a "set of the activities through which higher education institutions build linkages with external stakeholders and share the results of their work, by ensuring mutual benefits".
- The *HE meta-layer of context*: where institutions configure a place for exchange of operant and operant resources among actors. Institutional changes are organized along five lines proposed by Lusch and Vargo (2017, pp. VI) as "recent trends in innovating practices": (a) Open innovation, (b) User-led Innovations, (c) Co-creation, (d) The wisdom of crowds, (e) Lean Start-Up.

There are no previous contributions from the S-D logic to this framework of knowledge, which represents a contribution to axioms 3, 4 and 5 of the S-D logic, and meets the increasing demand for contributions on University-industry management (Ricci, 2019; Feldman, 2019; Audretsch, 2014; Claus, 2018; Bezanilla, 2020).

The conceptualization of the HE-University ecosystem allows for identification of three elements that represent key factors in its management (Tronvoll, 2017): the context (institutions), the linkages, and the actors. These three elements allow for the design of the Balanced Centricity HEI-University ecosystem, taking BC as an

institution capable of causing innovation to arise as a result of the work done by actors.

7.2 Implications for Management

There is a need to analyse which are the institutions and institutional arrangements that determine the relationships within the organization (in the university as well as in other contexts) and how they determine the kind of ecosystem linkages developed in it.

From the concepts of both the open economy (Chesborough, 2003, 2019), and ecosystem innovation in service (Vargo et al., 2016), there is a need for rule-breaking to engender a more open structure with collaborative easy-access linkages. Although in a broader sense there are many examples of companies in which this process has already taken place (e.g., Uber or Amazon), there is generally less flexibility in the University context in terms of its structure. Relationships have tended to be affected by barriers to communication and by bureaucracy, resulting in network ties based on brokerage (*tertius gaudens*), which were unattractive for those interested in the exchange of resources between the University and society.

The wider literature contains the demand for more exchange of resources (service for service) between the University and society, as part of attempts to maximize the benefits (economic and social) for all the actors involved, including entrepreneur communities, technological parks, incubators, accelerators, public agents, financing actors, small and medium size enterprises, start-ups, and consultants, as well as mentors, social change makers, University spinoffs and corporations.

In the present chapter, we propose strategies for reconfiguring the role of the university in a modern open society, starting with the adaptation to the new open economy in ways that demand easier, less structured relationships. From this perspective, the politics of eliminating bureaucracy and integrating actors from the entrepreneurial environment are considered rule-breaking and disruptive (Ventura, 2020). The first proposal is therefore oriented towards a reconfiguration of institutions that open the University up to external actors, and we propose Balanced Centricity as an institution capable of making a positive contribution, encouraging actors to work purposefully and allowing a self-adjusting system to evolve.

In this context, we also propose that HEIs require in-depth evolution at every level of the ecosystem, moving from a brokerage (*tertius gaudens*) structure characterized by a strongly bureaucratic approach, to a more open collaborative structure (*tertius iungens*). The results of the empirical approach are very clear in the greater attractiveness to actors of a new open model with easier access and less bureaucracy.

The process described is perceived as a new organizational model, based on the open service-for-service exchange model described by Lusch and Vargo (2016) as “innovation in service ecosystems”, and by other authors as the viable systems perspective (Polese et al., 2017), which involves actors in the environment in reaching

a sort of equilibrium in the system. The proposed theoretical model is considered in the university context (by the actor groups analysed).

As proposed by Gummesson (2017), the inherent complexity of service networks (Vargo et al., 2022; Gummesson & Polese, 2009; Vargo & Lusch, 2011; Verleye et al., 2017) requires the development of the appropriate approach to generate innovation and continuous improvement to the theory-in-use. From this perspective, ours is a theory-in-use contribution that raises the need to open universities up to the context and societies in which they are embedded, in order to foster a more collaborative form of evolution. Taken together, these ideas lead on to a number of different avenues for future research:

- There is a primary need in terms of the design of specific strategies of value co-creation for all the actors involved. The complexity of the University context demands specific structures, models, and institutions depending on the specific area in which value-in-context is to be developed.
- Encouragement for academics to engage deeply with the wider scientific community for both research and teaching purposes, allowing them to invest time in and contribute to work in the HE community. They will thus sharpen their own knowledge and provide additional validation for prospective innovations under consideration in the University.
- Many of the most pressing challenges in HE could benefit from solutions put forward by others in different locations around the world, through the sharing of problems on open platforms, such that anyone with interest and knowledge can offer ideas on how best to address such problems. Inclusion of all kinds of actors in the platform is important in that the quality of the outputs will depend on the variety and quality of actors working on them.
- Work with Research Groups in the University to manage internal IP more creatively and openly. Depending on the research topic, IP can be managed in order to provide different levels of access to actors.
- The BC ecosystem perspective connects with the recent re-conceptualization on emergence (Vargo et al., 2022). This perspective opens a new way for the design of strategies relying on the network to improve innovation and ecosystem self-adjust.

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