VALUE CO-CREATION IN THE IT SERVICE ECOSYSTEM

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Research in Progress

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Abstract

Despite the intense efforts to substantiate the value co-creation capability of IT service, current approaches only partially address the complex and dynamic nature of the IT value-creation process. Popular IT service frameworks such as ITIL and COBIT mainly focus on discrete customer-centric practices and processes and overlook the importance of a holistic and systematic approach to understanding value co-creation. The research follows an interpretive approach to building a framework based on a case study and grounded theory technique in a higher educational institution. The initial findings reveal the micro, meso and macro levels of value co-creation in the IT service ecosystem. This research contributes to research on value creation in the context of IT service by providing the holistic approach of the service ecosystem to value creation, which has been barely investigated. This research is in progress and presents the initial analysis of this qualitative study.

Keywords: service systems, information systems, interpretive study, S-D logic

1 Introduction

The concept of value is central to contemporary IT service. However, value and its creation process remain one of the most problematic dimensions of IT service in organizations. IT service can be defined as: "a service provided by an IT service provider that is made up of a combination of information, technology, people and processes" (Global Best Practice, 2011). IT services create and support information systems that integrate with people and processes to provide business services. IT services can help organisations to cut costs, generate customer value and support organizational goals in the fast-growing, rapidly changing global economies (Winkler and Wulf, 2019, Kearns and Lederer, 2004). Buffeted by unpredictable economic and social forces, organizations are under extreme pressure to deliver IT services effectively and efficiently, to support their strategic goals (Galup et al., 2007, Cusick, 2020). The challenge is that IT service is highly complex and dynamic, and more research in this area is needed to understand the interactions and relationships that characterise IT services and their value creation (Lempinen and Rajala, 2014). A limitation of existing studies of IT services and value creation within them is that the emphasis is on tangible outputs and discrete transactions, and value is built into a product and delivered from a provider to a customer (Vargo et al., 2008). While IT service comprises various actors such as IT users, IT service practitioners, IT decision-makers, business partners and external entities such as vendors and consultant agencies with different levels of interactions and relationships. Hence, the focus only on the individual and micro-level analysis in explaining the value creation phenomenon is narrow (Buchwald et al., 2014). Hence, understanding value creation requires adopting a holistic perspective, such as a 'service ecosystem' in which interdependence and interrelationships are brought to the fore (Cao et al., 2011, Wiengarten et al., 2013, Cao et al., 2016). Recently, IT service scholars have attempted to move their focus from the micro to the higher layers of the ecosystem. For instance, Wang et al. (2021) investigated how IT service climate support the delivery of quality services. Or how process reference frameworks such as ITIL could boost innovation in the digital service ecosystem (Iden et al., 2020). With the aim of contributing to a much-needed holistic understanding of value creation, the authors adopt the theoretical frame of "service ecosystem" as rooted in Service-Dominant Logic (Vargo and Lusch, 2017, Akaka and Vargo, 2015) with a grounded theory methodology (Gioia et al., 2013). Guided by

the question, "How can value co-creation be understood in a multi-level IT service ecosystem?" the authors are undertaking two-phase explanatory research in the context of a large university. To understand the nature of interactions and how value co-creates within the micro, meso and macro of the service ecosystem (Dam et al., 2020, Vargo et al., 2008), the interviews are conducted with actors at various layers of the IT service ecosystem. Open-ended interviews were conducted in the first step with IT directors, managers, and supervisors. In the planned second phase, interviews will be conducted to capture the user perspectives. It is important to gain perspectives from multiple levels because levels embed in each other, and dynamic interactions between actors shape the ecosystem and co-create value for the whole organization (Vargo et al., 2008).

This paper is a "research-in-progress" paper in which initial insights and coding are presented and discussed as a basis for further research. The research is focused on value co-creation in the context of IT service. It also offers an ecosystem approach for understanding the dynamics of multiple actors' interactions at the micro level of individual and dyadic interactions (service provision), meso level of IT technical teams and individuals (service facilitation) and macro level of business-oriented teams and individuals (service-business integration) that provide a holistic perspective to value co-creation in the IT service. Prior to discussing study results and insights gained, a background to value creation and the IT service ecosystem is provided, and the related research methodology is discussed.

2   Overview of related work

Service ecosystem as one major theoretical orientation of S-D logic attracts attention among scholars due to its protentional to capture the dynamic and multidimensional structure of changing world. The network view in S-D logic is not simply a static connection of resources, people, and products but has a dynamic structure of service provision and service exchange (Barile et al., 2016) and implies a phenomenological, or experiential, view of value within tiers of actors who interact and co-create value (Vargo, 2011, Vargo et al., 2017). A service ecosystem is defined as a 'relatively self-contained, self-adjusting system of resource-integrating actors connected by shared institutional arrangements and mutual value creation through service exchange' (Vargo and Lusch, 2016). The service ecosystem's structure is multi-level, which means higher-level structures emerge from lower-level interactions (Vargo, 2019). These levels are not independent of each other; rather they present different analytical perspectives. Hence, for analysing through an ecosystem lens, your analysis "oscillates" among micro, meso and macro levels (Akaka et al., 2012). In other words, to reach a better understanding of how value is cocreated, researchers should investigate value or determination at and from multiple levels, as well as the relationships among those levels (Chandler and Vargo, 2011). At the micro level of the service ecosystem, buyers-sellers and firms-customer interactions as service encounters (Akaka and Vargo, 2015) are central. At meso and macro levels, the focus of analysis lifts to the interactions within the focal firm, market, society, and community. Further research is needed to understand value co-creation interactions and outcomes in service ecosystems at various levels of aggregation (micro, meso, and macro) (Akaka et al., 2012, Edvardsson et al., 2012).

The Value concept emerged from economics and was analysed through cost and benefit evaluation in a dyadic (two-way) context (Porter, 1985) as "firm-derived value". Furthermore, most prior research has viewed IT value from the perspective of a single actor like customer (Dam et al., 2020, Holbrook, 1996) or business department (Afflerbach, 2015, Buchwald et al., 2014, Kohli et al., 2008) or a single firm with the mindset that IT investment in a single entity creates value for that entity of organization. More recently, decisions made by multiple actors with a focus on shared resources have led to the concept of value co-creation (Gobel et al., 2016, Mandrella et al., 2016, Winkler and Wulf, 2019). Most researchers agree that the next generation of IT value research should change the mindset from a one-directional and unbalanced focus on customer and business value analysis to focus on the co-creation of value through IT (Mandrella et al., 2016). Also, the nature and process of value creation remain poorly understood, and scholars call for more research on the value co-creation process (Payne et al., 2008, Vargo et al., 2017) - especially with respect to the interactions between actors, levels and

outcomes in service systems (Beirão et al., 2017). In the IT service domain, scholars have called for an understanding of IT value more holistically, e.g. (Wiengarten et al., 2013, Lempinen and Rajala, 2014). Gobel et al. (2016) analysis of service and value as represented in popular ITSM frameworks and standards: ITIL, CMMI, COBIT and ISO/IEC 20000 showed that a traditional view of value as something delivered by service providers to customers persists, and the view of the customer as an active creator, rather than a passive recipient of value is overlooked. S-D logic emphasises that value is something that is perceived and determined by the beneficiary (e.g., the customer) and service providers and customers are regarded as resource integrators collaborating to reach a shared goal that is more compatible with the modern perspective of service. Popular frameworks such as ITIL mainly target the micro level consisting of individuals and their actions (Cronholm et al., 2020). Hence, understanding value requires the cocreation process at each ecosystem level (Chandler and Vargo, 2011), besides understanding value co-creation interactions and outcomes at various levels of aggregation (micro, meso, and macro) (Strokosch and Osborne, 2020). Scholars also call for more evidence-based research to enhance IT value creation on the modern perspective of service ecosystem (Cronholm et al., 2020, Vargo and Lusch, 2017). Such research could also contribute to providing a deeper understanding of desired conditions and success factors of IT-based value co-creation (Mandrella et al., 2016). It is from this background that the present research emerges.

3 Method

The study adopted a qualitative approach based on Grounded Theory (Charmaz, 2006, Gioia et al., 2013) to investigate value co-creation in the IT service ecosystem from a multi-level perspective. We chose the grounded theory approach because of the following reasons: IT value scholars call for more practical and evidence-based research to justify and enhance the IT value creation based on the perspective of the service ecosystem (Cronholm et al., 2020, Cronholm et al., 2017, Vargo and Lusch, 2017). The grounded theory provides an explanation of what is happening in practice and is, therefore, a basis for practical, evidence-based action. Furthermore, the primary goal of grounded theory research is to propose theories that are strongly linked to the field data (Urquhart and Fernández, 2016), and the explanatory development of theory is a desired outcome (Birks and Mills, 2015) of the existing study. To investigate the units of analysis for the study of value co-creation at various ecosystem levels, an interpretive case study methodology was employed (Walsham, 1995). Using this approach, a case study with embedded units of analysis was used. In accordance with the grounded theory approach, the researcher draws on ideas from the literature and other sources to create the theory's constructs. This is essential because the literature will be consulted in the study's final stages (Glasser and Strauss, 1967).

3.1 Research setting and data collection

Given the complexity of the service ecosystem, it should be examined in a specific context (Voss et al., 2016). For the purpose of our study, we chose a higher educational context because of two main reasons. First, improving IT service is evidently a top priority for the organisation and examining the dimensions of value destruction in this context is highly relevant and demonstrates the practical importance of current research. According to the 2020-2025 strategy plan of the organisation, the university has invested approximately $350 million in digital infrastructure, including $20 million on educational technologies such as virtual learning and digital research infrastructure, to support the most critical functions of learning and teaching, research, and engagement: "We will simplify the technology environment to ensure we provide services that are easy to access and use and improve the student and staff experience." The second, the higher education sector, is a large-scale organisation, and its IT service has a complex and multi-level nature with many actors that suit the purpose of the current study. This is consistent with the fact that as enterprises grow in size and complexity, the emphasis shifts from the micro level to the meso and macro levels (Vargo and Lusch, 2019). It is clear that improving IT service is a priority for the organisation, and investigating value creation in this context is highly relevant and shows the practical significance of current research.

The research is set in the IT services division (~320 workers) within a large Australian educational institution (~50,000 enrolments). IT service in this context creates and delivers ICT and related practices and processes to facilitate learning, teaching and research for users and customers of the institution (strategy plan 2020-2025). The IT service division has a complex structure with multiple internal and external stakeholders and seven main IT domains: IT foundations (network and platforms); IT learning and teaching; IT research (E-research, data management); IT service centre (performance and service management); IT operations (strategic delivery); and IT value management (IT strategy, planning and engagement). Each IT domain comprises different levels of IT directors, IT managers, IT supervisors and IT engineers who deal with users and customers (such as students, researchers, staff, and academics). The IT services division represented the case study with its embedded business-oriented teams (macro level) and technology-oriented teams (meso level), which in turn have embedded individual IT actors in dealing with users (students, researchers, academics, and staff) (micro level). As such, this empirical ground is suitable for the purpose of our study as it represents a network of interactions and exchanges in various levels. Figure 1 shows the case study actor2actor ecosystem and the focus of current research (phase 1).
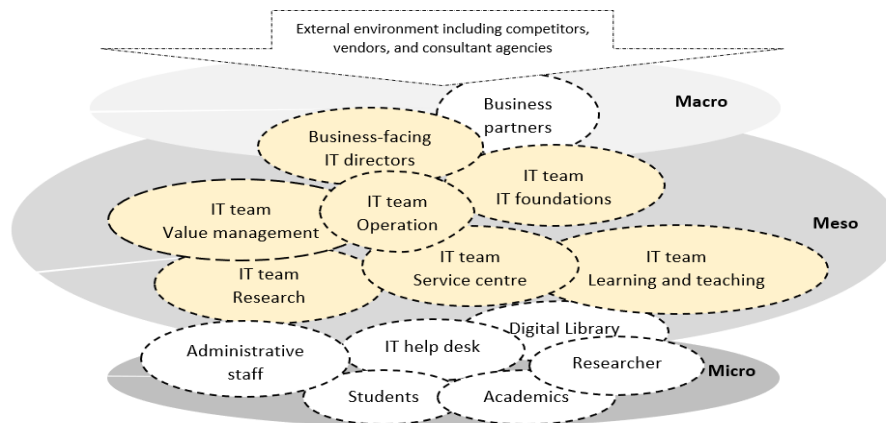

Figure 1:IT service ecosystem of the current study (actor2actor) and focus of the current study (in yellow)

We began the study with open-ended interviews of IT directors, managers, and supervisors. In the initial round of data collection, interviewees stated that IT service users and customers are essential ecosystem actors, and without their perspectives, we cannot have a complete understanding of the phenomena. So, we will continue our research with the service users in the second phase. We conducted four pilot interviews to evaluate our interview protocol and get feedback on questions. Examples of guiding questions were: What does 'IT Value' mean to you? Or 'How do you add value to the IT service in your organisation?' We sent our request for participation on a random basis through emails to potential candidates. Following the snowball sampling approach, we found other stakeholders that are involved in the IT service process as we went through interviews. Then, we conducted 14 online interviews with five business-focused IT directors, 3 IT heads, 4 IT managers and 2 IT supervisors. Potential informant bias was managed by applying open-ended questions and the promise of anonymity to the organisation and informants (Eisenhardt, 1989).

3.2   Data analysis

Chandler and Vargo (2011) three-level conceptualisation of context (micro, meso, and macro) was used to analyse the IT service ecosystem. Table 1 elaborates on definitions of levels and their interpretations in the current study.

levels	Definition based on (Chandler and Vargo, 2011)	Definition in IT service context	Actors and exchange in the current case study
Micro	Service exchange among actors as dyads	IT User-service provider dyadic exchange	Direct Exchange between IT front-liners and students, staff and researchers
Meso	Service exchange among dyads as triads	Exchange service through IT teams consisting of engineers, supervisors, managers	Indirect service Exchange between IT technical teams, engineers and supervisors and managers
Macro	Service exchange among triads as ecosystems	Exchange service through IT directors, business partners and external entities	The indirect service exchange between business-oriented actors like IT directors and business partners

Table 1: IT service ecosystem levels of the current research

The interviews were transcribed and edited before being transferred to the NVIVO software for analysis. Using the inductive foundations of grounded theory, the first step of data analysis began with an open coding procedure. Using a multi-step procedure (Charmaz, 2006), we discovered micro, meso, macro level, and relational codes in regard to the value co-creation of the IT service ecosystem. We alternated between data analysis and memo writing about developing concepts. As new insights reveal through data analysis, additional data will be collected to validate the theoretical interpretations. In the 1st-order analysis, we adhere to informant terms (table 2), while after considering similarities and differences to make categories, we treat ourselves as knowledgeable agents that will provide 2nd-order theoretical themes as the foundations for the final framework (Gioia et al., 2013).

Levels	First-order codes (Informant-centric phrases)	
Macro **Service integration level**	• Modern IT service as a competitive advantage • Enhancing the understanding of enterprise IT value • Alignment with strategy • Engaging with the right stakeholders • Systematic thinking or holistic approach	**Relational codes** • Engaging with the right stakeholders
Meso **Service facilitation level**	• Agile mindset and processes • Communication with business • Cyber security • Transparency and visibility • Collaboration and cross-skilling • Effective relationship and Team engagement	• Communication with business • Collaboration and cross-skilling • Effective relationship and Team engagement
Micro **Service provision level**	• Improving user experience • Understanding user needs • Appling user-friendly technology and service	• Understanding user needs
	• Continual improvement	

Table 2: Overview of initial coding

4 Initial Findings

Initial data analysis revealed the macro (service-business integration), meso (service facilitation), and micro (service provision) levels of IT value co-creation, as well as codes reflecting the interlinkages and dynamic interplay within and across IT service ecosystem layers, such as 'continuous improvement,' which is essential to all ecosystem layers.

4.1 Macro level (Service integration level)

Modern IT service as a competitive advantage: Leading institutions introduce their IT service as a competitive advantage and invest more time and money to strengthen this capability. *"Emerging and*

highly innovative technology would definitely be a value area. That would give the university a commercial edge or position. I've seen a favourable way in the market against other opportunities that all kind of areas from IT." In the absence of modern IT service, competing in an ever-changing IT industry would be a significant challenge for organisations: *"If you're not showing an agenda or strategy to modernise IT service, it will negatively impact IT brand and has reputational damage to the business."* as mentioned by one respondent.

Enhancing the understating of Enterprise IT service: Improving our understanding of IT services as an integral part of our lives is a key area of IT value creation. One of our interviewees mentioned that: *"IT Value is the understanding and helping our users to say that IT is not a separate thing; it's part of our everyday life."* One IT leader mentioned that: **"a greater understanding of IT service is needed."** And he followed his claim with an example about understanding IT service on an enterprise scale: *"I think perceptions of technology without having an in-depth understanding of what enterprise technology is and how it is different from our personal life technology in terms of scale, capacity, and security probably one of the biggest detractors to value."*

Alignment with strategy: The big target of IT service should always be the alignment with organisational strategy, and by following that strategy, IT managers and directors could make sure that they create value for the focal firm. This is confirmed by a statement: *"For me, IT value is doing the right thing at the right time and making sure that you have people, processors focused on overarching strategy."* If the IT department follows the right strategy, then IT directors and executive managers can translate those directions into the right guidelines for the front liners to apply in their roles. As one manager stated: *"We have provided some of those metrics of success or benefits in a tech space to align with those that university strategy."*

Engaging with the right stakeholders: It is critical to identify the right stakeholders that are important for value creation and engage with them to understand their needs.: *"IT value is a perceived value by the stakeholder at the other end (users)".* There needs to be a balanced engagement with different parts of the business to understand the real value: *"By asking the right questions and engaging in different parts of the business, not only the senior stakeholder, but we can also understand real value."* Another interviewee mentioned that: *"We were able to engage with our stakeholders more actively to be able to evolve that definition of value."*

Systematic thinking or holistic approach: Having a holistic approach is critical to be able to create value in the IT service environment*: "We have that engagement from all ends to end user point trying to find the best solution that provides the best outcome in the holistic level and having that holistic approach has been fantastic".* This emphasises the importance of a systems view of the service to prevent an unbalanced focus on a particular area of the process. An IT manager emphasised that *"IT service needs to be more merging of technical skills and front-end skills to prevent much focus on tooling, I mean it needs a systematic and process-mindset."* So, the shift of thinking toward a more holistic view needs a cultural change to transit from traditional thinking to a more system thinking.

4.2 Meso Level (Service facilitation level)

Effective relationship and Team engagement: Being open and sharing at the team level is crucial for effective collaboration between team members and across teams: *"We support the conversation between team members to enable decisions for moving forward and to course correct as quickly as possible."* Having an *effective relationship* and high levels of understanding between team members enhances team engagement as well. One interviewee with rich experience in IT service commented: *I always look at team members' engagement as an indicator of my team satisfaction and well-being."* Hence, team engagement, whether in formal or informal arrangements, could be a criterion for assessment of the effectiveness of that relationship at the team level.

Agile mindset and processes: Using an agile approach in IT service is the crux of IT value creation in the modern world, as most of our respondents declared. "*The real world and us needing to be agile as*

things change so often, but our processes and systems don't seem to flex with what's needed". Traditional approaches don't seem to work, and there is a need for training and bringing people on the same page*: "we've undergone agile fundamentals training, and I think the traditional ITIL works very well for the one-off transactional type of work, but when you're expected to deliver services continuously, you need to improve and create new features, and that could be over multiple years, and I'm not sure ITIL necessary always lends itself to a longer time frame."*

Cyber security: As the use of new technologies and networks grows, the need for confidentiality of data and information rises: *"Cyber security is a massive thing that needs to be discussed across all layers, not just within my domain, not just within IT department but all across the university".* So, increasing the security within digital services and networks will create more value for the stakeholders. *"The value add is securing everything from the data centre, Network layers, endpoints, cyber security awareness, making sure that students and staff confidently come to the university to learn and work"* Providing this trust and security will enhance the reputation of the IT brand in the eyes of stakeholders.

Transparency and visibility: Another critical aspect of value creation in IT service is transparency and visibility of work within tiers and domains of service: *"Having visibility of the work and then visit visibility from the helicopter view of service delivery and reporting on that more frequently is critical to value creation."* This visibility breaks the siloes between IT domains and enhances collaboration, as one IT director asserted: *"we are using an online platform for our collaboration in IT that gives people the visibility and transparency, so they have the ability to kind of collaborate on an equal playing field which is quite important for value creation."*

Communication with business: Rather than communication within IT domains, relationships with the business side and business decision-makers are also a major value area. *"Communication is what I believe can add or damage IT value. We have a communication problem with the business side. So, there is maybe misunderstanding about the processes, and there are two different viewpoints."* This challenge is greater in the case of something damaging happening to IT service. *"In the event of something breaking, the communication with stakeholders is critical to learn from the mistakes and prevent reputational damage to IT brand".* It is crucial for the IT service to have a good negotiation with business as an IT director believed: *"I think, enabling that visibility and simple transactional conversation makes it more efficient, which is a big driver of value and also provides that clarity."*

Collaboration and cross-skilling: In the modern IT world, IT people are not like "gatekeepers" of their systems or information; they collaborate and share. This collaboration with external agents such as other IT service centres and experts could enrich the internal knowledge and also shows the competitor's position of technology and expertise: *"We talk to all other service centres and service managers in other IT service community, and we discuss ideas and what they're working on, how they're working on things, service catalogues and so on. So that's where we get a lot of Cross-Skilling; where can we improve? Where do we need to change?"* or another one: *"I have Colleagues from other universities that I exchange; it's keeping yourself up to date on what is happening out there".*

4.3 Micro level (Service provision level)

Improving user experience: As pointed out by a participant: *"IT value for me is experience-focused, not solution-focused".* And that means that the key point to IT value creation is focusing on the user, not the technology. By improving the experience of the user in exposure to technology, IT service could help users to do their work in an easier and faster way that ultimately improves their life, as mentioned by one respondent: *"IT value is better improving the user-experience and lever technology to remove barriers, makes our lives easier."*

Understanding user needs: As expressed by one IT director, *"I do not add value by my technical skills; I add value by understanding our partners. I really understand what their anxieties are.What their hesitancies for technology are. We need to put the person the first thing that we think about and*

make life easier for them." Understanding people's needs and wants is the pivotal point of value creation, and having a good relationship could facilitate this understanding: "*IT service is about thinking of users as a human and trying to understand their feelings, having empathy and effective relationship with them that enhance their wellbeing at the end*".

Continual improvement: The need for continuous improvement throughout the whole ecosystem is more obvious than ever as our world is changing very fast. "*I think that value is understanding that it's constantly changing. It's not because you put something in place that is done. It's never done. It's always a continuous improvement process, is always looking for opportunities to create and leverage the systems that we have, better improve the user experience, improve ways that we can lever technology to make our lives better.*" One of the capabilities that could help in this improvement is the course-correct ability: "*Our team creates value by providing the ability to course-correct so we can make changes and re-align where we need to. So that we're achieving the strategy.*"

5 Conclusion and future work

The current study is guided by the main question of "How can value co-creation be understood in a multi-level IT service ecosystem?" The study's aim is to develop a framework for value co-creation in the IT service ecosystem. Such a framework will add contributions to both S-D logic and IT service value research domains by applying a multi-level perspective to the IT value co-creation process from a "service ecosystem" perspective. Our observations change the way we think about the value co-creation concept as a dyadic exchange between user and service provider to a holistic and multi-level phenomenon. This novel approach is especially significant for understanding the complex context of IT service that has critical priority in the strategic goals of the organizations. The disaggregation of the ecosystem levels enables the investigation of value creation factors within each level (service integration, service facilitation and service provision). There are interrelations and influences across levels that are evident in data analysis. The deeply interconnected levels influence and form each other as multiple actors (individuals, IT teams and business actors) engage in dynamic shaping and improving value creation. This is in line with previous research stating that the understanding of service ecosystems requires a multilevel perspective, considering an interplay between micro, meso, and macro levels of the ecosystem (Chandler and Vargo, 2011). This new understanding is significant specifically for the complex context of IT service and has barely been investigated.

This study-in-progress paper describes the initial informant-centric codes as the basis for building the value co-creation constructs. The aim of the completed research is to develop theoretical themes that serve as the foundation for a dynamic framework illustrating how such constructs interact to co-create value. Such a comprehensive understanding is achievable when the experience of IT service users is also incorporated into the data pool during the second phase of the study to capture the multi-actor perspectives of value co-creation.

This research has limitations that invite further research. First, we consider only value co-creation factors. For a comprehensive view of value formation, considering value co-destruction is important. Second, to keep the focus of the research, we investigated the opinion of IT directors, managers and supervisors. The insights of IT users reveal other aspects of IT value co-creation nature. In future work, we will address these limitations by building on the preliminary results presented in this paper and show how value forms within dimensions of the IT service ecosystem (considering co-creation and co-destruction). It could also be argued that this research relies on data from only one educational institution. This focus enabled an in-depth analysis of the ecosystem value creation, which is a contextual phenomenon (Vargo et al., 2017). Studying and comparing other diverse settings may provide new insights into how the nature of the sector influences value creation at different levels. Given that the value of IT services is dynamic and evolves over time, a longitudinal study on this topic offers an additional route for future investigation.

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