

Service system resilience under resource scarcity: from vulnerability to balanced centricity

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Abstract

Purpose – Disruptive shocks significantly compromise service contexts, challenging multidimensional value (co)creation. Recent focus has been on consumers experiencing vulnerability in service contexts. However, the susceptibility of service firms, employees and other actors to the impacts of disruptive shocks has received little attention. Since resource scarcity from disruptive shocks heightens tensions around balancing different needs in the service system, this paper aims to propose a framework of balanced centricity and service system resilience for service sustainability.

Design/methodology/approach – Adopting a conceptual model process, the paper integrates resilience and balanced centricity (method theories) with customer/consumer vulnerability (domain theory) resulting in a definition of multiactor vulnerability and related theoretical propositions.

Findings – Depleted, unavailable, or competed over resources among multiple actors constrain resource integration. Disruptive shocks nevertheless have upside potential. The interdependencies of actors in the service system call for deeper examination of multiple parties' susceptibility to disruptive resource scarcity. The conceptual framework integrates multiactor vulnerability (when multiactor susceptibility to resource scarcity challenges value exchange) with processes of service system resilience, developing three research propositions. Emerging research questions and strategies for balanced centricity provide a research agenda.

Research limitations/implications – A multiactor, balanced centricity perspective extends understanding of value cocreation, service resilience and service sustainability. Strategies for anticipating, coping with and adapting to disruptions in service systems are suggested by using the balanced centricity perspective, offering the potential to maintain (or enhance) the six types of value.

Originality/value – This research defines multiactor vulnerability, extending work on experienced vulnerabilities; describes the multilevel and multiactor perspective on experienced vulnerability in service relationships; and conceptualizes how balanced centricity can decrease multiactor vulnerability and increase service system resilience when mega disruptions occur.

Keywords Resource scarcity, Value cocreation, Vulnerability, Service system resilience, Balanced centricity, Customer value, Conceptual, Employee, Cocreation, Well-being

Paper type Conceptual paper

1. Introduction

An acceleration of megatrends including climate change, geopolitical tensions and emerging technologies calls for continuous upgrades of contingency plans. However, only 12% of companies are sufficiently prepared for future global value chains disruptions (World Economic Forum, 2021).

Disruptions, local, regional and global, or mega disruptions such as war states and ongoing climate change are trigger events that threaten firm operations, survival and consequent value creation (Kabadayi *et al.*, 2020; Salunkhe *et al.*, 2021). Mega

disruptions are increasing in terms of frequency, intensity and probability. For instance, weather-climate disasters have been calculated to have cost 290bn euro in 2017 alone (Global trends to 2030 – challenges and choices for Europe, 2019, p. 8). Hospitalizations for heat-related illnesses are a part of these

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costs (Schmeltz *et al.*, 2016) and the direct damage costs to health, caused by climate change, are projected to be between 2 and 4 billion US\$/year by 2030 (WHO, 2021). Hotter temperatures are also estimated to cause a loss in productivity, a forecast suggesting that in 2030 they will cause a loss of 2.2% of total working hours worldwide, equivalent to global economic losses of US\$2,400bn (ILO, 2019). In addition, the world population as a whole is aging (the share of population over 65 is projected to rise from 8% to 12% between 2019 and 2030), meaning a 2% shrinkage of work force in Europe by 2030 (Global trends to 2030 - challenges and choices for Europe, 2019). Therefore, there is an urgent need to discuss the implications for value creation in services and in marketplace exchanges since these trends add vulnerability to several levels of our society (WHO, 2021).

Although global connectedness has led to efficiencies of scale, brand awareness and market development, it has also increased vulnerability for firms due to economic instability or adversity, exacerbated by the complex interdependence of systems when processes are disrupted (Interos, 2021). Service firms create value for owners, employees, customers and society, including earnings, pay and taxes. Value is also cocreated among many parties in a shared process (Edvardsson *et al.*, 2018; Gummerus, 2013; Vargo and Lusch, 2017; Ramaswamy and Ozcan, 2020; Patrício *et al.*, 2020). Thus, value creation and cocreation need to succeed on different levels requiring adequate quality and quantity of resources, accompanied by appropriate processes for resource integration; without these, there will be unrealized value potential or even value destruction. Such local, regional or global disruptions as noted above inflict economic instability and dramatically highlight resource and capability constraints that service firms continue to face in an increasingly chaotic future. Mega disruptions, with implications on the global value chain, are likely to occur more frequently and with greater intensity in the current and future age of uncertainty (World Economic Forum, 2021). Therefore, tangible ways to sustain value cocreation and enhance continuity for service firms in the contemporary service context are needed.

Cronin (2022, p. 35) calls for marketing theory and practice to “recognize that social responsibility describes a marketing process where the well-being of multiple parties (i.e. providers, users and society) is considered in identifying appropriate strategies.” Since value creation takes place in a complex network, differing value perspectives between these multiple parties (Lepak *et al.*, 2007) need to be considered in order that value exchanges in the marketplace meet the diverse goals and needs of these multiple parties (Reyppens *et al.*, 2016). This calls for a balanced centricity approach which advocates for consideration and satisfaction of multiple parties’ (such as customers’ and service providers’) needs simultaneously (Gummesson, 2007, 2008). Since the purpose of service business is to create mutually beneficial value; that is, service firms achieve financial continuity and providers and customers become better off, failure to do so gives rise to experiences of vulnerability (cf. Fehrer and Bove, 2022). However, a dominant focus to date has been on consumers experiencing vulnerability in goods and service consumption contexts (Hill and Sharma, 2020; Johns and Davey, 2019, 2021; Leino *et al.*, 2021; Raciti *et al.*, 2022; Rosenbaum *et al.*, 2017), at the same

time acknowledging the role of resources and service system [1] attention in mitigating the effects of experienced vulnerability. Little attention has been devoted to service providers’ vulnerability nor to service systems’ vulnerability. This points to a gap in the services marketing literature regarding how diverse goals and needs of multiple parties in service exchanges are simultaneously met when vulnerabilities are experienced at different levels of the service system.

Resource integration for value creation takes place on micro, meso and macro levels requiring interactions between various stakeholders in the service delivery network (Caridà *et al.*, 2022; Mitrega *et al.*, 2022; Virlée *et al.*, 2020). To attain service system sustainability and repetitiveness through value cocreation, this integration needs to be orchestrated within and across each of these levels. While resource scarcity from (mega) disruptions directly and immediately impacts the focal firm, disruptions to value creation flow through the service system as do the resulting experiences of vulnerability. The current paper argues that the dynamics of service vulnerability, namely, subjective perceptions of susceptibility (Raciti *et al.*, 2022) as a consequence of disruptive resource scarcity and capability limitations, affect customers and service providers alike and impact multiple levels of the service system (Berry *et al.*, 2020; Kubacki *et al.*, 2020). Unexpectedly, developing sustainable service value and value cocreation where focal firms have few resources and limited capabilities due to disruptive shocks has received little attention in value cocreation research (Boukis and Kabadayi, 2020; Merrilees *et al.*, 2017). In seeking to address these gaps in current knowledge, the paper asks the following research questions:

- RQ1. How are multiple parties’ needs simultaneously met in service exchanges when vulnerabilities from (mega) disruptions are experienced at different levels of the service system, and
- RQ2. How do service users and providers sustain exchanges and relationships to cocreate value in circumstances of resource and capability scarcity due to (mega) disruptions?

The paper conceptualizes balanced centricity and service system resilience in disruptive resource scarcity to make several contributions. First, the conceptualization adds service system resilience combined with balanced centricity to services marketing literature extending the understanding of value creation under resource scarcity. Second, in doing so, the paper provides an understanding of how focal firms and multiple parties manage value cocreation during disruptive shocks to create value harnessing resources and capabilities within resource scarcity contexts. Third, by highlighting balanced centricity as a necessary approach for service firms when disruptive shocks increase susceptibility to the associated resource scarcity challenges, the paper provides concrete strategies for focal firms, employees and customers to prepare for (mega) disruptions. Finally, the paper contributes to the Special Issue theme of “identifying and exploring critical issues that will define service research over the next decade” (Cronin and Nagel, 2022), namely, how value cocreation can be managed and service firm continuity maintained in the context of increasing (mega) disruptions for service firms. The paper argues for a balanced centricity perspective to managing value creation which is vital in the face of resource scarcity. A further intended contribution to the Special Issue is to generate

future discussion and research stimulated by the propositions (Section 3), 20 novel research questions (Table 2), and the directions for future thinking in “The way forward” (Section 4).

The paper proceeds as follows. First, the conceptual development section (Section 2) outlines the conceptual method. This section then identifies and defines the constructs investigated: focal service firm, employees, customers and value cocreation and vulnerability and resilience in service systems. Section 2 also includes the literature review, ending with balanced centrality and resilience. Section 3 defines vulnerability in a multiactor context, introduces the theoretical propositions illustrated with two cases of health-related social services with concrete examples, and provides a conceptual framework. The paper next presents a detailed research agenda according to service system resilience processes (Section 4). This agenda includes concrete strategies linked to these research questions (Table 2), suggesting how addressing these research questions should help service firms, employees and customers prepare for disruptive shocks. The paper concludes with implications for theory and practice (Sections 4 and 5).

2. Conceptual development

2.1 Introducing the conceptual method

This paper uses a conceptual model process (Jaakkola, 2020; MacInnis, 2011). The starting point is the focal phenomenon of susceptibility to resource scarcity due to disruptive shocks and the consequent impacts on value exchanges in a service system. The term *shock* is adopted rather than *crisis*, since the former covers a broader range of situations than the latter but importantly includes opportunities for firms to develop positive outcomes based on their capabilities (Nenonen and Storbacka, 2020; Pedersen and Ritter, 2022), linking to the argument here of progress toward balanced centrality.

The paper follows the conceptual model process, integrating method theories of resilience and balanced centrality with the domain theory of customer/consumer vulnerability to conceptualize the processes and factors influencing the focal phenomenon. Theoretical propositions are then synthesized (Cornelissen, 2017; Vargo and Koskela-Huotari, 2020). The three propositions of the paper “break new ground” (Cornelissen, 2017, p. 4) highlighting what is critically important to examine in later empirical research (Uлага et al., 2021). Two cases (informed by the authors’ experience with the case organizations) illustrate the application and implications of each proposition (Vargo and Koskela-Huotari, 2020). Finally, a conceptual framework is proposed and relationships between constructs are identified (Jaakkola, 2020).

2.2 Defining the key constructs

To develop the paper’s conceptualization, this section identifies and defines the key terms and constructs for the focal phenomenon of disruptive resource scarcity. The key constructs are: focal service firm, employees, customers and value cocreation and vulnerability and resilience in service systems.

2.2.1 Focal service firm, employees, customers and value (co)creation

The service system refers to the “configuration of people, technologies and other resources” (Patrício et al., 2011, p. 180) that enables customers to cocreate service experiences

according to the firm’s service concept. Several frameworks have been developed to describe these service systems and their key elements (Langeard et al., 1981) and although they are generally at a firm level, customers increasingly combine service offerings from multiple firms in value cocreation processes.

Value emerges from value cocreation processes that take place within the network of focal firm, people and technologies not just in the service provider-customer dyad (and their respective spheres). In other words, cocreation is a “multiparty process that includes customer, focal firm, and other market-facing institutions” (Ranjan and Read, 2021, p. 80). Although value creation importantly involves the focal firm/service provider as well as customers, there are numerous other parties involved in value creation whose actions are varied and heterogeneous. To accommodate this heterogeneity of the multiple parties involved, the term actor [2] (and multiactor, referring to people and firms in a service system) is used in this paper to refer collectively to the many people involved in value exchange. Specifically, the term customer, incorporates:

[...] beneficiaries, such as the business customers, patients, citizens, actors, buyers, consumers, users and clients who purchase and/or use the service and can embody various roles, such as user, payer and decision-maker (Lipkin and Heinonen, 2022, p. 2).

All economic and social actors are value-creating entities and thus require resources for exchange and integration to create mutual value (Breidbach and Maglio, 2016). Although service firms [3] frequently contend with disruptive shocks that reduce resource availability, value cocreation is typically understood as occurring *without* constraints (Vargo et al., 2010). Economic instability or adversity places firms under stress such that the service providers, employees, customers or other actors in the service system are constrained in the process of value cocreation. Value across multiple dimensions is consequently diminished. For example, staffing shortages, fragmented service delivery due to supply chain shocks and loss of service partners, staff turnover, renewal pressures due to technological advances and service training challenges from disruptive shocks severely compromise service contexts. Such resource constraints challenge the business requirement for financial continuity that is necessary to deliver value to stakeholders, employees, customers and partners (De Smet et al., 2022). Hence, successful value cocreation is not guaranteed when adversity or disruptions constrain focal firm resources, firm capabilities (e.g. limited technological advancements, slow business transformation) and employee and/or other actor resources (or access to them) and capabilities. Challenges can also accumulate as resource scarcity or shortage of capabilities spreads through multiple levels of the service firm and service system. Thus, resource scarcity is a challenge for firms/service providers with implications for value cocreation and wide-ranging economic consequences. These conditions induce experiences of vulnerability which calls for response and adaptation from the service systems.

2.2.2 Vulnerability and resilience

Vulnerability, adversity and resilience are closely interconnected (Jackson et al., 2007). Recent work points to the burgeoning scholarly interest in customer/consumer experienced vulnerability in services marketing where customers/consumers experience disadvantage or who need support in service settings and who do not realize value (across

many value dimensions, perceived or actual) and whose well-being is not improved (Johns and Davey, 2019, 2021; Hill and Sharma, 2020; Raciti *et al.*, 2022; Rosenbaum *et al.*, 2017). However, vulnerability and adversity are not always detrimental. Adverse events and vulnerability have potential upsides (Honkasalo, 2018) allowing firms and individuals to “build back better” (Shepherd and Williams, 2023, p. 28) and to grow in a dramatically different way from a mega disruption. Consequently, adversity causing resource scarcity and experienced vulnerability can be an asset depending on how the resource scarcity is interpreted and managed.

To provide a starting point, this paper takes the recent services marketing perspective that defines customer/consumer vulnerability as “experiences of vulnerability are subjective perceptions of susceptibility [...] that give rise to greater strength and resilience” (Raciti *et al.*, 2022, p. 1165). Extending this definition of consumer/customer vulnerability to a focal service firm, susceptibility to adverse events is potentially detrimental to firm continuity, value creation and cocreation, yet also has potential for service adaptations and resilience, if appropriately managed (Ritter and Pedersen, 2020). Relatively modest service adaptations in response to disruptive shocks can significantly benefit firms, employees and customers by advancing economic efficiency (Lillrank *et al.*, 2022).

2.3 Review of literature

This section reviews the literature that informs the conceptual framework (Section 3). *Resource scarcity and service system vulnerability* is central to this paper and is discussed first. Successful *value creation* is not guaranteed when adversity or disruptions constrain focal firm, employee and others’ resources (or access to them) and capabilities (e.g. limited technological advancements, slow business transformation). This is reviewed next. Resource scarcity is a challenge for firms/service providers and has economic consequences. The economic consequences, such as instability or adversity, set the firm and its employees under uncertainty and stress which can mean that providers and/or customers (or other actors in the service network) are constrained in their exchange and use of resources. The final sections of the literature review introduce the *balanced centrality* approach and service system *resilience* as means to mitigate these consequences of resource scarcity.

2.3.1 Resource scarcity and service system vulnerability

An abundance of theoretical and empirical models of vulnerability exists across many disciplines (psychology, management, social work, medicine and disaster management) with differing units of analysis (individual, social group, organization, community and nation). Each of these levels of analysis is essential when considering a multiactor context such as service system. Although studied across many disciplines, the concept of vulnerability is equivocal and the way it is approached varies and continues to evolve.

The focus of vulnerability discussion regarding service relationships is typically on consumers’ or customers’ subjective perceptions of susceptibility (Hill and Sharma, 2020). Less attention has been paid to the phenomenon of experienced vulnerability concerning other actors, particularly

the service firm actors (service providers and employees) within service systems. Some more recent studies account for vulnerability experienced by family members (Leino, 2017; Pavia and Mason, 2014) and relational value creation (Kelleher *et al.*, 2020; Lam and Bianchi, 2019). Relational value creation emphasizes the interdependence between service firm, customers and others and is identified as “the mutually generalized oscillation among interdependent actors’ (i.e. referent and nonreferent beneficiaries’) interactive, relativistic, and multiform experiences of negative and positive well-being in service systems” (Kelleher *et al.*, 2020, p. 216).

Despite these broadened understandings of customer entities there is still a deficit of theorization of the different forms of focal relationships, value formation and well-being outcomes in multiactor service systems (McCull-Kennedy *et al.*, 2020). Table 1 briefly summarizes multiactor service research exploring vulnerabilities.

This table (Table 1) illustrates literature considering notions of customer or service provider/employee vulnerability. It exemplifies the approaches in this research field and brings forth the scarcity of studies that consider experienced vulnerabilities from the point of view of all actors. The challenges in understanding the interplay of actors’ emotions in value creation (Sandberg *et al.*, 2022a), the service provider vulnerability to undesired customer behavior (Loh *et al.*, 2022) or vulnerability to feeling burdened as a result of work overload (caused by staffing shortages for instance; Rosenbaum *et al.*, 2022) highlight the need to expand the theoretical discussion on vulnerability and its dynamic nature to encompass the multiactor context, including service provider/employee vulnerability.

Since vulnerability can be experienced on individual, collective and system levels, the dynamics of service firm, employee and customer vulnerability affect the value cocreation within service systems. Collaboration, resource integration and value cocreation between networked service system actors is needed to create and maintain sustainable service systems (Gallan and Helkkula, 2022; Virleé *et al.*, 2020). Furthermore, service providers as organizations are vulnerable to economic fluctuations and various shocks and shifts in the marketplace taking place currently or affecting future sight or the lack thereof (Rai *et al.*, 2021), causing loss or uncertainty of economic value and imbalance in organizations’ current activities and future planning. These imbalances, for instance, that take place in customer and service provider logics (Verleye *et al.*, 2017), are arguably highlighted in the face of resource scarcity. The resource scarcity then exacerbates the prioritization or adjustment of (service) activities. The competing institutional logics have been explored in terms of causes of imbalance in complex service networks (Verleye *et al.*, 2017) but interestingly, little research has explored how imbalance caused by resource scarcity from disruptive shocks (or experienced vulnerability) occurs in system processes and how this is remedied or mitigated to enable value cocreation. To be able to conceptualize value cocreation under resource scarcity it is essential to first consider how value is created and/or destroyed.

2.3.2 Value creation

The determination of value outcomes depends on how value is defined (Gummerus 2013), from whose perspective value is

Table 1 Service research exemplars of providers/customers/actors experiencing vulnerability

Study	Level of analysis	Study emphasis	Service context	Experienced vulnerability domain
Yagil (2006)	Customer-service provider dyad	The relationship of service provider power motivation, empowerment and burnout to customer satisfaction	Public service (welfare, health education) and private service (banks, communication companies)	Service employee vulnerability <ul style="list-style-type: none"> adverse effects of disrespectful customer behavior, especially regarding employees with high power motivation employee burnout and customer (dis)satisfaction
Hepi et al. (2017)	Clients, actors and service providers	Cocreation between two activity systems within a social services context <i>Other actors</i> as enablers of value or well-being cocreation and service outcomes also influence these other actors (such as family members)	Indigenous social service provider	Customer vulnerability
Anderson et al. (2018)	Service design	Service design in improving service and consumer entities' well-being Health-care consumers include patients and their families	Health service	Potential vulnerability of patients
Johns and Davey (2019)	Other actors	Other parties in the service provision who may not be used by the service provider but who are central to the service value exchange	Family support services	Consumers who experience vulnerability in service contexts
Lam and Bianchi (2019)	Customers/consumers – family members	Family members cocreate value to improve the well-being of patients with chronic developmental disorders The findings reveal well-being outcomes for both patients and family members	Health service	Experienced vulnerability of patients. Implicit family members' vulnerabilities
Kelleher et al. (2020)	Customers/ consumers – family caregivers	Interdependencies among multiple resource-integrating actors and value outcomes in service systems Interdependent value outcomes are termed <i>relational value</i>	Social service	Dependent referent beneficiaries. Implicit family members' vulnerabilities
Loh et al. (2022)	Service providers – customers – other customers	The interactional link between customer incivility and service provider retaliation and job outcomes	Sales, hospitality, banking, health and government	Service employee vulnerability, service firm vulnerability, other customers experience vulnerability <ul style="list-style-type: none"> uncivil customer behavior can result in increasing vulnerability for service providers or their customers
Leino et al. (2021)	Customers/consumers	Primary and secondary customers' needs, using service inclusion to study experiences of vulnerability	Aged care	Customers' (including family members) experiences of vulnerability
Sandberg et al. (2022b)	Customers/consumers	Coping strategies of vulnerable stakeholders regarding value trade-offs and spillovers within servicescapes	Aged care	Primary customers' and secondary customers' experienced vulnerability
Riedel et al. (2023)	Service employees	Job demands and personal characteristics increase frontline employee (FLE) vulnerability	Mixed (systematic literature review)	Frontline employee (FLE) vulnerability

Source: Authors' own work

determined (including service provider and service customer, e.g. Payne *et al.*, 2008), and who is involved in the value creation processes which can include those in various roles (business customers, patients, citizens, buyers, users, Lipkin and Heinonen, 2022). When defining value, there has been a transition from the economic perspective of value, to perspectives that emphasize value as multidimensional, including functional, emotional, temporal, spatial and social aspects of value, in addition to economic value (Grönroos, 1990; Holbrook, 1994; Gummerus, 2013; Sandberg *et al.*, 2022a). Increasingly value is considered in terms of well-being (Anker *et al.*, 2015; Kelleher *et al.*, 2020; Leino, 2021).

There are several approaches to the way value creation is conceptualized. Value is considered as mutually created by actors who integrate resources through service exchanges (Vargo and Lusch, 2016) and it is always “uniquely and phenomenologically determined by the beneficiary” (Vargo and Lusch, 2008, p. 7), beneficiary typically referring to an individual actor, particularly a customer or consumer (Becker *et al.*, 2023). Value has been addressed as having subjective as well as economic dimensions and emerging not just in the service provider-customer dyad (and their respective spheres) but within a network of actors (Grönroos and Voima, 2013; Gummerus, 2013). Value formation is interrelated between service provider, customer and other actors (Sandberg *et al.*, 2022a). Thus, value can be experienced in the form of individual or collective value, often shared among multiple actors, including the service provider (Becker *et al.*, 2023).

Services essentially aim to create value propositions for customers or to cocreate value with customers, but the scarcity of resources can severely compromise the ideals of value creation if the processes to support value creation are, or become, dysfunctional. For instance, the scarcity of resources can hinder the service provider from gaining adequate understanding of the customer’s current situation and true needs. Furthermore, this can challenge the service profit logic when flaws in the processes deteriorate customer willingness to pay (Grönroos, 2020) or prevent the service provider engaging in mutually beneficial value creating processes. For example, Ranjan and Read (2016) identify dialogue, access, risk assessment and transparency as key service provider processes in value cocreation.

At the organizational level, on its behalf, value creation is derived from the organization’s innovation and invention capacity, its dynamic capabilities and the processes through which new organizational knowledge is generated (Lepak *et al.*, 2007). The logic is that employee knowledge can create value for target customers if it is harnessed and managed appropriately to generate innovations that the customers perceive valuable.

2.3.3 Value cocreation and resource integration in the context of resource scarcity

Resources are a source of differentiation and potential value for firms, contributing to firm performance and goal achievement. These resources; physical, legal, human, organizational, informational and relational resources, are the basis for activities that enable value cocreation (Grönroos, 2012). The tenet of value creation in service systems connotes mutuality

(Vargo and Lusch, 2016) and relationality (Kelleher *et al.*, 2020) which, however, suffer from actors’ loosely coupled interactions, divergent institutional arrangements or unwillingness to integrate their own and others’ resources (Mustak and Plé, 2020). The term “orchestration” has been used in recent service research to describe how the goals, resources and activities of actors within service systems can be coordinated and integrated to cocreate value (Caridà *et al.*, 2019; Caridà *et al.*, 2022; Kelleher *et al.*, 2020).

Furthermore, value cocreation extends beyond the organization-customer dyad and can require/allow interactions between various stakeholders in the service delivery network (Mitrega *et al.*, 2022; Virlée *et al.*, 2020) and in the customer’s own frame of reference (Heinonen *et al.*, 2013; Johns and Davey, 2019; Kelleher *et al.*, 2020; Leino *et al.*, 2021; Virlée *et al.*, 2020). Thus, it is necessary to consider multiple stakeholders’ perspectives to how resources can and should be integrated to achieve balanced centrality (Gummesson, 2008) and service resilience. Kelleher *et al.* (2020) highlight the need for multiactor collaboration and sustainable management of scarce resources to address resource gaps and to orchestrate value in complex service systems. Defining different actors (or actor types) who experience vulnerability is essential especially when discussing service relationships during resource scarcity.

At the organizational level, the knowledge, skills and resources of employees and arguably also motivations, are the resources to be orchestrated for value cocreation. Employee empowerment and service superiority are among the goals of service system development (Kandampully and Duddy, 2001), to provide value for customers and competitive advantage for the businesses. However, the times of resource scarcity, for instance shortage of staff, can often increase employees’ work-related stress (Glazer and Gyurak, 2008; Ofei *et al.*, 2020). In addition to human resource scarcity, which is prone to cause increased pressures and work overload for the remaining individuals, there are sometimes flaws in the tools or systems that direct the employees’ attention and resources to other than the core tasks. This can cause experiences of vulnerability (e.g. powerlessness and feeling burdened) among the employees.

When resources are scarce (unavailable, depleted or competed over) action is taken to improve or remove the unfavorable discrepancy in resource levels. In this account, customer capabilities and access to resources are crucial. In the customer’s frame of reference (also termed customer ecosystem, Heinonen *et al.*, 2013), the resources to be integrated within the service process can be individual capabilities/resources or collective capabilities/resources that exist, for example, on a family or community level (Sweeney *et al.*, 2015; Virlée *et al.*, 2020). A customer’s own collective ecosystem resources can considerably facilitate the service process when they (e.g. family members) act as mediators between the service provider and customer (Johns and Davey, 2019) or are considered as customers (Leino, 2017). This customer-centric perspective includes these close others.

2.3.4 Balanced centrality

However, customer-centricity has been challenged as too limiting as a foundation of marketing with a better approach being to adopt balanced centrality which is a network-based stakeholder approach, where “all stakeholders have the right to

satisfaction of needs and wants” (Gummesson, 2008, p. 17). While the customer-centric approach is especially beneficial and needed for customers experiencing vulnerabilities, the current and presumably also future, scenario of disruptive resource scarcity makes it relevant to consider multiple actors’ perspectives to service provision. More specifically, it is essential to discuss how to secure adequate service provision when service providers face disruptive events or circumstances that challenge the sustainability of service systems, causing experienced vulnerability for customers and service providers.

When cocreating value in a multiactor context it is evident that value perceptions often differ between actors (Lepak *et al.*, 2007). Imbalances especially in complex service networks have been traced to competing institutional logics, referring to a situation where customer logic and business logic are not aligned (Verleye *et al.*, 2017). Reypens *et al.* (2016) note that the different parts of the entire value system need to be in balance, since imbalance can lead to value destruction rather than value creation. Importantly Verleye *et al.* (2017) argue that the imbalances can be solved if accountability, communication, engagement and responsiveness between the actor and network level within the service network are fostered, and thus, the goal of balanced centricity is advanced. Furthermore, Quero and Mele (2023) found that adopting balanced centricity as an institutional logic can assist actors in developing a collaborative community, overcoming resource limitations and advancing the cocreation of mutual value. Thus, balanced centricity is a logic that advocates for creation of well-being for all actors, which fosters service system well-being (Leo *et al.*, 2019). To achieve this outcome, experienced vulnerability for customers and service providers needs to be considered for finding ways for resilience building.

2.3.5 Resilience

Resilience is extensively debated within many discipline areas. In the customer vulnerability domain, Baker and Mason’s (2012) multiactor process theory of consumer vulnerability and resilience describes how trigger events cause shocks leading to a state or experience of vulnerability. Resilience in their model is an individual state and a positive adjustment in the face of adversity. Although this model focuses on different kinds of (vulnerable) consumer contexts, the concept of resilience at the firm or organizational level remains undeveloped.

More generally, consensus regarding important issues, such as how resilience should be defined, assessed and measured, is elusive. Diverse definitions exist, ranging from how people manage stress, a process, or an outcome (Lee *et al.*, 2013), the capacity to withstand a disturbance (Manyena, 2006; Sheffi and Rice, 2005), the ability to thrive and develop competency given adversity (Fletcher and Sarkar, 2013; Luthar *et al.*, 2000) to bouncing back to a level of activity or functioning after a crisis (Weick and Sutcliffe, 2007). Many studies generally acknowledge two main factors; first, that resilience is the antithesis to vulnerability in terms of how an individual, community or system reacts to a disturbance (Sutcliffe and Vogus, 2003); and second, that resilience is both a desired outcome and a process (Manyena, 2006).

More specifically in organization studies, the concept of resilience has gained momentum (Duchek, 2020; Erol *et al.*,

2010; Limnios *et al.*, 2014; Linnenluecke, 2017; Williams *et al.*, 2017) although the work has been described as “fuzzy” (Hillmann and Guenther, 2021, p. 7). Most studies focus on firm and organizational characteristics and resources, treating resilience as an outcome often overlooking the activities and how resilience is achieved (Lengnick-Hall *et al.*, 2011). However, Duchek (2020) takes a capability focus to organizational resilience which this paper adapts for service system resilience as: service system resilience is the system’s ability to “anticipate potential threats, to cope effectively with adverse events, and to adapt to changing conditions” (Duchek, 2020, p. 220). Each of the successive stages, of anticipation, coping and adaptation, requires the right resources to be in place to support the actions that result in resilience, that is, “only when a capacity for resilience is transformed into action in an organization that resilience becomes an organizational capability” (Richtnér and Löfsten, 2014, p. 138). The three overlapping and interdependent stages can be summarized according to key capabilities:

- anticipation does not imply that disruptive resource scarcity can be prevented but rather that the service firm (and system) has the ability to identify critical elements and threats;
- coping includes the ability to accept a problem and the ability to develop feasible solutions in a short period of time; and
- adaptation implies the ability to handle change and the ability to renew under conditions of disruptive resource scarcity (Duchek, 2020).

While disruptive shock may create resource scarcity (at micro, meso or macro levels in a service system), the service system (and its actors) can anticipate, cope and adapt to create new structures that importantly reduce multiactor experienced vulnerabilities and allow the service system to be sustainable.

3. Resource scarcity and service system resilience: toward balanced centricity

3.1 Defining vulnerability in multiactor context and introducing propositions

Disruptive shocks in service contexts weaken resource availability for firms through a multitude of factors: unavailable employees, level of employee training, work preferences, investor funds or disrupted supply lines. When there are insufficient resources or when resources are contested, resource integration processes are diminished (Igra *et al.*, 2021). Thus, vulnerability to unforeseen shocks constrains the firm’s ability to create value for customers, markets and the economy. Although research on service firms providing enabling environments to mobilize capabilities and improve access to resources for customers has grown (Davey *et al.*, 2021; Davey *et al.*, 2023; Kubacki *et al.*, 2020), most prior research has focused on specific actor groups experiencing vulnerability. Notably most research has focused on customer groups (Riedel *et al.*, 2021; Rosenbaum *et al.*, 2017). Service providers work to maintain revenue, develop and strengthen customer relationships while at the same time safeguarding employees and supply chain partners (Ansell and Boin, 2019), highlighting the complexity of value creation processes in service systems (McCull-Kennedy and Cheung, 2018).

Therefore, the interdependencies of firm, customer and other actors in the service system call for deeper examination of multiple actors' potential susceptibility to resource scarcity.

Drawing from frameworks of consumer/customer vulnerability (Raciti *et al.*, 2022), balanced centrality (Gummesson, 2008) and resilience (Duchek, 2020), this paper defines multiactor vulnerability and presents three propositions:

Definition: Multiactor vulnerability occurs when susceptibility to resource scarcity challenges and diminishes the continuation of resource integration processes for multiple service actors that otherwise lead to value exchange, value creation and value cocreation.

- P1.* Disruptive resource scarcity (that is, when resources are unavailable, depleted or competed over due to disruptive shocks) triggers focal firm action to improve or remove the unfavorable discrepancy in resource levels.
- P2.* The focal firm and other system actors reimagine resources and sources of capabilities for resource integration to increase service system resilience (anticipation, coping and adaptation).
- P3a.* Disruptive resource scarcity increases multiactor vulnerability.
- P3b.* Balanced centrality decreases the detrimental effects of disruptive resource scarcity on multiactor vulnerability.

Just as marketing scholars increasingly recognize that value unfolds in complex settings and is cocreated among multiple actors within networks and systems (Lipkin and Heinonen, 2022), this paper argues the same view is essential when adversity generates challenges for resources and capabilities. Thus, the definition complements and extends existing work on experienced vulnerabilities by explicitly incorporating a multiactor perspective that includes the service provider (employee and organization actors, in addition to customers) and positions multiactor experienced vulnerabilities within the processes of resilience that depend on reintegrating resources.

Service firms and service actors (firms, customers and suppliers) are not simply acted upon by adverse conditions. Their varied responses and interpretations shape the relationship between resource scarcity, experienced vulnerability and outcomes. Disruptive shocks and adversity have upside potential "motivating actors to think laterally, apply resources frugally, and gain benefits of coming together to manage uncertainty, thereby enhancing co-creation outcomes" (Ranjan and Read, 2021, p. 87). *P3* adds balanced centrality to these notions of potential upsides to adversity and resource scarcity, namely, that in well-functioning markets all stakeholders are entitled to satisfaction of their needs (Gummesson, 2008), which also implicates mitigation of experienced vulnerabilities.

3.2 Definition and propositions elaborated

This section elaborates these three related propositions using two cases to illustrate how multiactor vulnerability and service system resilience shape resource/capability and service firms cocreate value with customers and their networks and innovate

to compensate the unfavorable discrepancy in resource levels, at the same time achieving balanced centrality.

3.2.1 Definition with case illustration

Definition. Multiactor vulnerability occurs when susceptibility to resource scarcity challenges and diminishes the continuation of resource integration processes for multiple service actors that otherwise lead to value exchange, value creation and value cocreation.

Case illustration: foster care services

Disruptive resource scarcity exacerbates foster care service characteristics of underfunding. This illustration of foster care is one that relies on a government agency, that makes the policy decisions regarding a child, and frequently a nongovernment organization that recruits, trains and supports foster carers in receiving child placements. In this service system, foster carers are also deemed service providers (although foster carers often do not see themselves as providing a "service"). For example, at a new child placement all of the actors are susceptible to challenges from scarce resources and pressures; these range from shocks to staffing availability delaying policy and implementation decisions, to inadequate support for the foster family such as transport and emotional support requirements. These disruptive shocks to resources can occur at all points during the service process, which can be up to 18 years for a single child in foster care, particularly as the focal firm works to support the child and ensure all parties are sufficiently supported (and resourced) to enable sustained support for the child. Importantly, for the child shifting to "out of home care," whether that be foster care or kinship care (with family or family friends), triggers a significant vulnerability diminishing their participation in the service resource integration. For example, depending on the age of the child, they may be able to voice their expectations and fears, however, in many cases, the ability to do so is diminished by age or the feeling of helplessness, and issues with resource scarcity across various parties in the service interaction.

3.2.2 Proposition 1 with case illustration

P1. Disruptive resource scarcity (that is, when resources are unavailable, depleted or competed over due to disruptive shocks) triggers focal firm action to improve or remove the unfavorable discrepancy in resource levels.

Case illustration: nursing home services

When an elderly person moves to a nursing home, her/his mental, social and physical capabilities are resources that can be integrated to facilitate adjustment to the new living environment. At the same time resource integration provides a value exchange to the frontline service employee (e.g. who is able to complete processes smoothly) and for the service firm (e.g. who gains reputation value and customer satisfaction). However, despite existing capabilities, disruptive shocks cause staff shortages, in turn, preventing service employees devoting sufficient time for their service delivery component. Frontline staff experience susceptibility to resource scarcity challenges, including feelings of inadequacy and powerlessness. This scenario triggers innovation of new practices to reorganize service delivery processes that support resident's agency at the same time alleviating employees' workload, for example, planning activities together *with* residents and doing daily activity chores together.

3.2.3 Proposition 2 with case illustration

P2. The focal firm and other system actors reimagine resources and sources of capabilities increasing service system resilience (anticipation, coping and adaptation).

Case illustration: nursing home services

Since staffing levels are regulated by law, disruptive shocks to staffing shortages require the service firm (and employees) to reconfigure the working practices and work role descriptions but also to devise and implement new (types) of resources to ensure adequate service value. New technologies are used and different means of communication are one solution. Importantly, residents' family members' capabilities are recognized and orchestrated to support the adjustment (if new to the nursing home) and care of the resident. Family members as other actors in this service system also receive value as they are acknowledged in a trustful service relationship. However, on the contrary, if coping and adaptation are absent and resources are not reimaged, then scarce staff resources mean that service employees are overworked, possibly across several departments or shifts, the service firm is challenged (experiences susceptibility to these scarce resources) and coping is reduced.

Another broader approach to reimagining resources is that of community involvement for the cocreation of services (Ho and Shirahada, 2023) which could result in collective shaping of service ecosystems and markets in response to disruptive resource scarcity. In the nursing home service - this potential is often implicitly involved and integrated but not as systematically and collaboratively as would be optimal. These perspectives raise the question of how the vast but partially unacknowledged potential of complementary resources from the other actors (Abboud *et al.*, 2020) could be systematically integrated in the service design and delivery.

Reimagining resources is needed to foster service system resilience and vice versa, service system resilience (particularly adaptation) enables firms (or employees, customers and partners) to reintegrate resources and capabilities that may hitherto have gone unnoticed, reconfiguring processes, roles and activities. These can be seemingly minor activities or resources, for example, softening the distinction between customer and employee roles, which in the nursing home meant baking *with* the residents, not only *for* them. This often requires removal of institutional barriers in order for institutional change to take place in service organizations and value cocreation to genuinely take place in a multiactor context (cf. Koskela-Huotari *et al.*, 2020).

3.2.4 Propositions 3a and 3b and case illustrations

P3a. Disruptive resource scarcity increases multiactor vulnerability.

P3b. Balanced centrality decreases the detrimental effects of disruptive resource scarcity on multiactor vulnerability.

Case illustration: nursing home services

The consequences of resource scarcity or shocks to the service system often appear on all levels of the system and affect customers and even their close network. First, customers often have diminished resources for value exchange/cocreation which sets special and additional requirements for the service provider (for the service organization and employees). These customers also often draw support from their own network who become involved in the service process. Second, service providers face the challenge

of meeting the criteria for good quality of care when there is disruptive resource scarcity (e.g. staffing shortage). The multiactor vulnerability (proposition 3A) is exacerbated given the contact-intensive nature of the nursing home service (cf. Jaakkola *et al.*, 2017). However, in a balanced centrality approach (proposition 3B) the nursing home needs to: provide support to overworked (and vulnerable) employees, maintain supply relationships with partners (catering, linen suppliers, medical and pharmaceutical partners), to maintain care of the residents. In addition, some specified parts of the care, which do not require nurse qualification, could have potential to coproduction with other actors, such as family members or community volunteers, thus being network level cocreation. If the outcome of these activities is positive for all actors, experiences of vulnerability are mitigated which exemplifies balanced centrality.

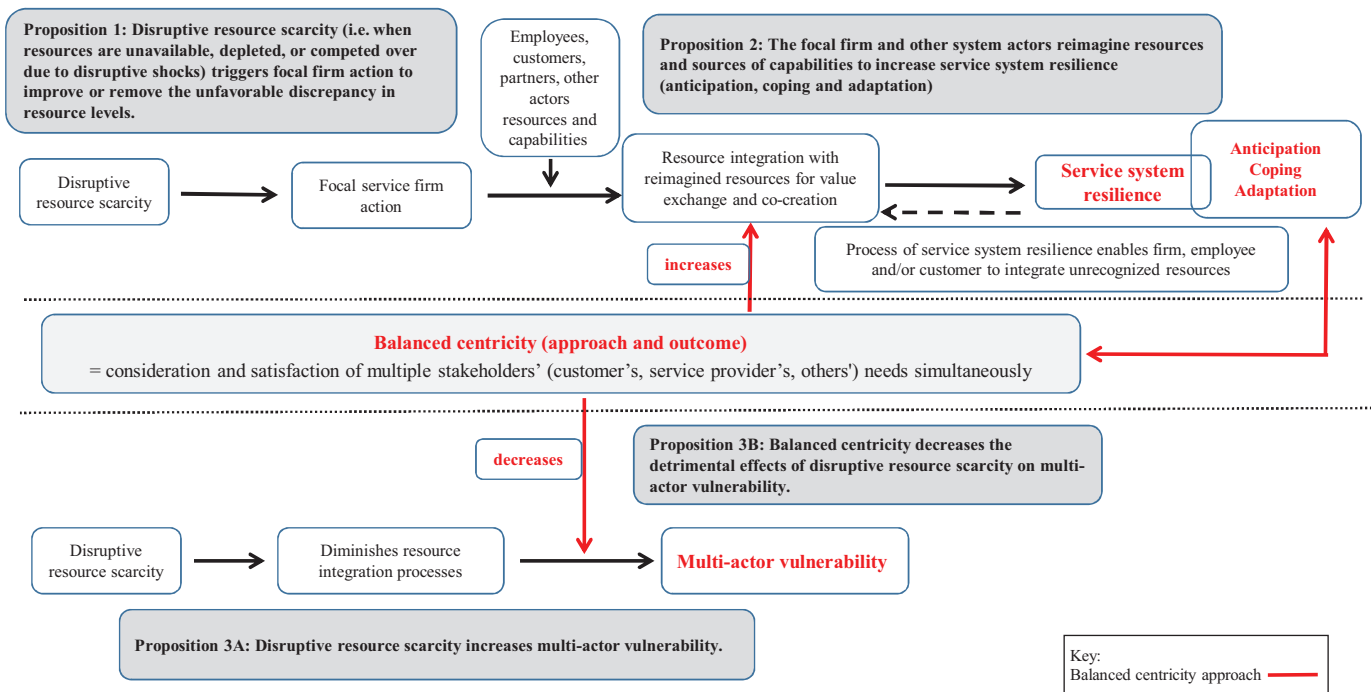
Case illustration: foster care services

Foster care requires a bespoke set of service processes, unique to the needs of each service user. For example, a child's placement may remain stable for many years prior to an incident triggering past trauma. This past trauma may then influence the child's interactions with service providers, including their foster family. Further resources are needed to match the service needs of the child. Taking a balanced centrality approach, multiple actors work within and recognize the varying system layers and actor needs in this scenario: central government agencies, nongovernment organizations, foster carers, the child and support workers. Through this, value creation opportunities are greater for all actors of the service system. Disruption in the service process demands value creation by all members of the service system. For example, drawing on resources, seeking support and increasing actors within the service system to support the needs of the service user.

3.2.5 Toward balanced centrality

By recognizing multiactor vulnerabilities, the service system actors, processes and resources are better placed to adapt and transform in response to dramatic service shifts. Service provider vulnerability can encourage innovative and networked forms of resource integration with customers, and other actors (partners, suppliers, maybe even competitors). For example, coping with a disruptive shock by providing a more tailored and correctly timed service delivery, protects the customer from undesirable consequences and allows the service provider to better handle the change (Vogus *et al.*, 2020). Thus, susceptibility and vulnerability can be an enabler of value creating interaction (Honkasalo, 2018).

Notwithstanding whether resilience is a process or outcome (Lee *et al.*, 2013), disruptive shocks cause resource and capability scarcity for firms, customers, suppliers, at varying levels of a service system. Under a balanced centrality approach multiple actors individually and collectively put alternative logics and nontraditional relationships to work. These system resilience processes (summarized according to anticipation, coping and adaptation, Duchek, 2020) enable value exchanges (tangible and intangible) at whatever level (micro, meso and macro) essential to the exchange objective (Anderson *et al.*, 1999). The value exchange relationship and resilience processes may occur at the firm-customer dyad, the firm-supplier level, service employee-families or at firm-firm and firm-industry partnerships. Figure 1 provides a conceptual framework. A balanced centrality approach (depicted in the center of Figure 1) recognizes multiple and collective potential

Figure 1 Conceptual framework: balanced centrality and service system resilience

assets, capabilities and resources increasing service system resilience (Ungar, 2021). Correspondingly, service system resilience through balanced centrality decreases multiactor vulnerability (depicted in the lower section of Figure 1).

4. The way forward: contributions for service thinking and practice

Through the dual lenses of balanced centrality and service resilience, the paper provides implications for theory and practice relating to enhancing and preserving value exchanges (functional, emotional, temporal, spatial, social, and economic aspects of value) in a service marketplace that is facing increasing mega disruptions and consequent shocks. Over the next decade, service scholars and practitioners must address how to manage value cocreation under these conditions, how to leverage capabilities as assets, and how to build service system resilience and firm sustainability. This can mean intensified relationships between service provider and customer to identify shared goals and the collaborative pursuit of these, resulting in strengthened cocreation.

4.1 Theoretical contributions and avenues for future research

As businesses are confronted with local, regional and global disruptive shocks it is critical for service researchers to critique and reconceptualize value cocreation under conditions of disruptive shock and resource scarcity. This calls for recognition of experienced multiactor vulnerability and the need for service resilience. Greater use of technology and process changes through service redesign and delivery can reduce exposure of the service system to system shocks. In addition, capitalizing on capabilities of service providers and frontline employees combined with

identifying marketing strategies that produce well-being for all exchange participants must be considered for firm and service system sustainability. If service (and value) is “created in a network of activities involving a host of stakeholders” (Gummesson, 2008, p. 17) then so too is resilience.

This paper argues that balanced centrality is difficult to achieve due to vulnerabilities experienced on multiple levels and among different actors within the service system (Quero and Mele, 2023). The novelty in this is the multilevel and multiactor perspective on experienced vulnerability in service relationships and thus in building sustainable service systems (Groven *et al.*, 2021; Gummesson, 2008). This calls for service researchers and providers to consider service actor, focal firm and service system susceptibility to resource scarcity, and strategies for facing these, to achieve balanced centrality in value cocreation.

Several outstanding and emergent questions for research are indicated in Table 2, along with opportunities for service firms to strategically prepare for disruptive shocks. The opportunities show how balanced centrality and service system resilience offer the potential for service firms to preserve the six types of value in a service marketplace.

The emerging research questions in Table 2 demonstrate the need to better understand service firms', employees' and customers' susceptibility to disruptive resource scarcity challenges impacting service system resilience. In light of increasingly unpredictable service contexts, it is imperative that service researchers explore balanced centrality in resource scarce service systems.

4.2 Managerial implications

Table 2 provides a practical understanding of how wellbeing can be created within the service system, alongside the research questions forming the research agenda. Once explored, these

Table 2 Emerging research questions and strategies for balanced centrality

Service system resilience processes	Research questions	Implications and strategies
Anticipation - to anticipate impacts of resource scarcity and multi-actor vulnerability	How can focal firms in complex interdependent service delivery contexts (healthcare, social services) anticipate resource scarcity?	<i>For service firms</i> Strengthen partnerships within service system that enable the exchange of resources Use CRM and market intelligence systems to monitor changing macro and micro environmental factors <i>For service employees</i> Prepare for alternative work assignments/roles, e.g., by attending job rotation
	How can customers, supply chain partners and other stakeholders help design service delivery to better anticipate and react to disruptive shock?	<i>For service firms</i> Co-create to determine solutions for the benefit of all partners Prepare service blueprints considering roles of all members (see Lillrank <i>et al.</i> , 2022) Enable frequent informal communication Support lines of communication with experienced boundary spanning personnel <i>For service employees</i> Share tacit knowledge with colleagues and employ collegial decision-making to prevent potentially unnecessary work <i>For customers</i> Identify individual needs and share knowledge with partners
	How can services be co-created in a multi-provider and multi-stakeholder context to anticipate economical use of resources, e.g., by preventing unnecessary use of resources due to inadequate information and unfit procedures (Lillrank <i>et al.</i> , 2022)?	<i>For service firms</i> Create a service blueprint including where resources exist, how they are used and their potential use. <i>For service employees</i> Use knowledge of service blueprint to identify obstacles to recognising and using resources e.g., are there processes and service models that are at high risk when resources are scarce?
	How can service design leverage untapped resources and capabilities within service firms?	<i>For service firms</i> Create a service blueprint including where resources exist, how they are used and their potential use. <i>For service employees</i> Use knowledge of service blueprint to identify obstacles to recognising and using resources e.g., are there processes and service models that are at high risk when resources are scarce?
Coping - to cope with adversity through reimagining resources	What are some best practice strategies that customers use to reimagine resources to cope with multi-actor vulnerability?	<i>For customers</i> Be aware of the service network and who to deal with for particular service needs. For example, service providers could provide customers with a simplistic service blueprint/ process for consumer understanding. Connect with other customers for information, knowledge and assistance
	What strategies can organizations use to recover from resource scarcity?	<i>For service firms</i> Co-create with partners to develop strategies for delivering service despite resource scarcity Reorganize the use of resources, e.g., by eliminating inefficient or overlapping practices Innovate novel service ideas and ways of delivery, based on those resources that are available <i>For service employees</i> Share common goals and even out responsibilities among employees if work load becomes unevenly distributed
	How can firms reimagine resources if service delivery is over a short time frame?	<i>For service firms</i> For short term services: Consider strategies for pre-packaged service delivery that follows a set process. For short term services: Have short term partners on call For long term services: Consider strategies for customized service delivery, whereby needs of all service partners, including end user, are considered, and service delivery adapts with regular check ins <i>For customers</i> For long term services: Consider strategies for coping with service adaptations during long term service delivery (e.g., staffing changes, process changes). Demonstrate resilience through the process of change by building a supporting network of service actors
	What happens when the service delivery needs a long lead time for planning, recruiting personnel and partners, and delivery?	For long term services: Consider strategies for customized service delivery, whereby needs of all service partners, including end user, are considered, and service delivery adapts with regular check ins <i>For customers</i> For long term services: Consider strategies for coping with service adaptations during long term service delivery (e.g., staffing changes, process changes). Demonstrate resilience through the process of change by building a supporting network of service actors

(continued)

Table 2

	<p>How do a focal firm's responses to experienced vulnerabilities in one area of the disrupted service system affect susceptibility to resource scarcity challenges in other areas?</p> <p>And among other actors?</p>	<p><i>For service firms</i> Check for unintended consequences of resource scarcity and service disruptions</p> <p><i>For service employees</i> Share responsibilities among employees if work load is unevenly distributed</p> <p><i>For customers</i> Prepare for possible service disruptions by sourcing alternative options, or service providers</p>
	<p>What are the roles of customers and other actors toward balanced centrality in disrupted service networks?</p>	<p><i>For service firms</i> Use service blueprinting to understand roles of all parties, and where disruptions may occur</p> <p><i>For service employees</i> Show proximity to customers to facilitate co-creation, avoid overly formal role divisions or hierarchical relationships where possible</p> <p><i>For customers</i> Draw support from social networks (such as family and peers)</p> <p>Actively engage with the service provider and service employees to find ways to recognize capabilities and how they can be used/implemented to mitigate the effects of disruption</p>
<p>Adaptation</p> <p>- to enhance value creating interactions and sustained functioning under resource scarcity using a balanced centrality approach</p>	<p>How do customers and other actors susceptible to disrupted value creation ensure their capabilities are utilized?</p> <p>How can services be designed to co-create all six types of value (economic, functional, emotional, temporal, spatial, and social) for service providers and customers alike?</p>	<p><i>For service firms</i> Enable sharing of information within the service network, to ensure capabilities match opportunities</p> <p><i>For service employees</i> Compile an explicit portfolio of capabilities (from current and previous work roles) that can assist in reimagining resources</p>
	<p>What points of service delivery pose the most significant challenge for balanced centrality under resource scarcity shocks?</p> <p>How can novel technologies be harnessed to assist in planning the order and urgency?</p>	<p><i>For service firms</i> Understand the service process through service blueprinting to determine points of service delivery with key challenges</p> <p>Research service end users to support service process understanding</p> <p><i>For service employees</i> Acknowledge the touchpoints where most challenges or highest workloads arise</p> <p>Detect activities and/or practices where network level co-creation efforts (within service system, with customers or other actors) can alleviate work loads</p>
	<p>The processes of service system resilience do not guarantee positive outcomes. How do unintended consequences reduce the re-integration of resources and capabilities?</p> <p>How do firms re-cover from unintended consequences when resources are scarce?</p>	<p><i>For service firms</i> Reorganize the use of resources and develop novel ways of co-creation with customers and other actors</p> <p><i>For service employees</i> Document and analyse the unintended consequences to develop future practices for avoiding detrimental unintended consequences</p>
	<p>How are disruptive shocks addressed, what resources and interaction processes are effective?</p>	<p><i>For service firms</i> Consider other models for service provision e.g., accelerated digital technology to deliver service that influences: the service, customer interactions and partner interactions.</p> <p>Alter service schedule and amend service protocols to optimize resource processes for personalized but economically effective outcomes (see Lillrank <i>et al.</i>, 2022)</p> <p><i>For service employees</i> Co-design service practices and/or activities with customers and their family members</p>
	<p>How is adaptation measured? For whom?</p> <p>How are dynamic capabilities in the firm (e.g., Teece, 2018) recognized, reimagined and organized to adapt to resource scarcity and changing operation environment?</p>	<p><i>For service firms</i> Develop opportunities for service quality measurements and reflection on service processes</p> <p><i>For service employees</i> Consider which capabilities need developing or need to be newly acquired to adapt to resource scarcity</p>

(continued)

Table 2

	<p>How do consumers and secondary consumers (Leino, 2017) contextualize their knowledge and abilities, particularly in high credence services, such as health care, finance, education and social services?</p>	<p><i>For service firms</i> Develop opportunities for sharing experiences and abilities toward service enhancement, e.g., through a useful CRM system</p> <p><i>For service employees</i> Consider customers and their family members as partners that can provide unique knowledge and capabilities for co-creating value in a customer-centric way, benefiting also employees (i.e., balanced centrality)</p> <p><i>For customers</i> Express willingness (and its degree) to co-create the service planning and/or delivery. Draw upper and lower limits for how much and what type of resources and capabilities can be offered for co-creation.</p>
	<p>How are the processes of anticipation, coping and adaptation (service system resilience) enacted within contact-intensive and/or high credence services?</p>	<p><i>For service firms</i> Build mutual service goals with actors on micro, meso and macro level</p> <p>Create a network of actors where potential disruption to one part of service system can be repaired with help from other network actors</p> <p><i>For service employees</i> Develop practices for maintaining personal and work community resilience to be able to support also customer resilience</p> <p><i>For customers</i> Find ways of co-operating with service employees to co-create mutual value</p>

Note: CRM = customer relations management

Source: Authors’ own work

research ideas have implications to benefit service managers facing disruptive shocks, whether these shocks are due to major global or local issues and whether the impacts are on staff shortages, supply chain issues or cash flow.

Furthermore, this research encourages services firms and service designers to consider ways that capabilities and resources of all supply chain members, including the end user, can be effectively used. With balanced centrality as an objective, susceptibility to disruptive resource shocks (multiactor vulnerability) is decreased. In addition, such an approach actively recognizes that service system resilience comprises interdependent collective processes that provide complementary resources for value creation and value cocreation. In addition, service providers should implement systems that empower actors, build on strengths and reintegrate resources as they construct alternative logics for service postdisruptive shocks.

Managerial implications vary considerably between contact-intensive services, high credence services and quotidian services. However, Table 2 identifies implications and strategies for service managers according to the anticipation, coping and adaptation processes of resilience and according to the (simplified) service system level of firms, employees and customers. These implications for service managers include regular and adaptable service blueprinting considering roles of all actors, planning network-level practices to foster resilience, encouraging community and third sector involvement within the multiactor service system, and public-private sector collaboration. Such approaches are essential in the contemporary service system that is likely to continue to be depicted by disruptive resource shocks.

5. Conclusion and limitations

Disruptive shocks to service contexts (Field *et al.*, 2021; Ostrom *et al.*, 2015; Ostrom *et al.*, 2021) and the rapidly changing nature of work (Frey and Osborne, 2013) have led to service actors (firms, customers, suppliers) making self-centric (rather than other-centered allocentric) decisions in order that firms stay in business or individuals remain employed. For example, employees are opting out of work, changing industries, choosing different work routines often causing service disruptions (Ostrom *et al.*, 2021); suppliers are exiting supply agreements; service providers are repurposing service provision prioritizing revenue generation over staff retention but stagnating service innovation in which frontline employees have an essential role (Engen, 2020). Collectively these factors cause resource scarcity, multiple actors at different system levels experience vulnerability and value exchanges and value creation are detrimentally affected.

This paper challenges service researchers to critically examine multiactor vulnerability and balanced centrality (beyond customer-centricity) in value creation and value cocreation during disruptive shocks. It has explored how balanced centrality is connected to service system resilience and ultimately, service sustainability by contemplating how experienced vulnerabilities can be turned into resilience on different system levels. Furthermore, this paper discusses how focal firms, employees, customers and service systems and processes can resolve tensions and discrepant needs and resources, enhancing balanced centrality (Groven *et al.*, 2021).

Despite its depth, this paper is limited in its conceptual nature of the discussion. The paper provides case examples to

support and elaborate the propositions (sub-Sections 3.1 and 3.2), however, empirical research is needed to explore these propositions. We thus provide an agenda for future research for studying service system resilience processes (including questions related to service design and cocreation) and strategies for addressing multiparty vulnerability.

Notes

- 1 The terms service system and service ecosystem refer to similar constructs but are used differently depending on the literature stream. Service-dominant logic uses the term service ecosystem (e.g. Vargo and Lusch, 2016) but service inclusion literature mainly discusses service systems (e.g. Fisk et al., 2018). Service inclusion refers to the concept defined by Fisk et al. (2018, p. 835) as “an egalitarian system that provides customers [...] with fair access to a service, fair treatment during a service and fair opportunity to exit a service.” Due to the resilience emphasis of this research the term service system is used.
- 2 The actor term is used generically to collectively refer to the many people involved in value exchanges where they facilitate “the creation of value (for themselves and others) through resource integration and service exchange, even though they are heterogeneous in their specific actions” (Vargo et al., 2023, p. 8).
- 3 For simplicity, the term service firm is used in this paper although acknowledging that both private and public organizations face these challenges.

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