

Towards dynamic decision-making in government as service organization: insights from systems thinking

Insights from
systems
thinking

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Abstract

Purpose – Service organizations operate in an increasingly complex and uncertain context that makes decision-making challenging. Despite well-recognized changes in the operational context of government as service organization, service literature has given surprisingly limited attention to what these changes imply for organizational decision-making. This study aims to face with the lack of fit of decision-making theorizing with the reality, within which most service practitioners operate, in order to foster the relevance of decision-making in service research and properly approach the false assumptions and misguided instructions for action.

Design/methodology/approach – To rectify the situation, the purpose of this paper is to advance a more holistic understanding of decision-making in government as service organization. The authors do so by reviewing the sparse, though insightful, prior literature on decision-making in service research and identifying four foundational assumptions of decision-making in the service context, that radically differ from the traditional assumptions of decision-making within the wider management literature.

Findings – The authors contribute to service research by further advancing the emerging dynamic understanding of decision-making by developing eight systems thinking-informed research propositions and a connected research agenda. In doing so, the paper offers the essential ground work that can revitalize the field of service management and equip it for facing the challenges that government as service organization is encountering in the 21st century.

Originality/value – The formulated eight research propositions demonstrate that decision-making in a government as service organization occurs within complex adaptive systems composed of multiple subsystems and is characterized by a high degree of unpredictability. It is a process influenced by multiple actors part of the system and subsystems, through multiple feedback loops, where the implications of prior decisions inform the future decisions.

Keywords Decision-making, Service research, Government as service organization, Systems thinking

Paper type Conceptual paper

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“Managers are not confronted with problems that are independent of each other, but with dynamic situations that consist of complex systems of changing problems that interact with each other”.

– Russell Ackoff

Introduction

Service research is acutely aware of the tectonic shifts that have made service organizations' operational context increasingly complex and uncertain (Ostrom *et al.*, 2015; 2021). There is also an increasing recognition that service organizations are highly interconnected with one another and with other stakeholders within the complex context they operate in (Field *et al.*, 2021); this is valid for the government as service organization too (Bo, 2006; Bo, 2018). In other words, rather than creating value in isolation, service organizations are part of broader value co-creating systems that consist of other organizations (whether competing or collaborating), consumers and beneficiaries, governmental agencies, etc. (Vargo and Lusch, 2011). Usually, these multi-actor configurations are conceptualized as service systems or service ecosystems (Maglio *et al.*, 2009; Frow *et al.*, 2014). Although, the co-created nature of value has been generally acknowledged for almost 20 years (Vargo and Lusch, 2004), service research is only beginning to examine what such interconnectedness means for decision-making within service organizations (Badinelli *et al.*, 2012; Carrubbo *et al.*, 2017).

According to Calabro (2011, p. 7), governments have made considerable efforts to improve their efficiency in past decades, to reduce costs by downsizing and rationalization, by introducing new managerial concepts and tools and by being more responsive to citizens, facing with competition and an increasing demand for privatization, especially because they suffer from long-lasting fiscal stress. But, while the development of service managers' competences in relation to decision-making is argued to be “of utmost importance in the quest for continual effective service quality performance” (Gilmore and Carson, 1996, p. 39), organization decision-making has only received limited attention within service research. Simultaneously, there is also a lack of broader management literature that takes into consideration the uniqueness of decision-making within service organizations (Morris *et al.*, 2010). The few studies that explicitly theorize about decision-making within service organizations (Grönroos, 1990; Jaakkola, 2007; Holmlund *et al.*, 2016) highlight the shortcomings of the traditional understanding of decision-making and show how it is not applicable in the service context. This lack of service-aligned decision-making theory is problematic as most service research articles take an implicit stance on the nature of decision-making in service organizations, as well as in government as service organization, when discussing the managerial implications of their work and giving guidance to practitioners. This implicit stance usually resembles the broader management literature's view on decision-making, which is not aligned with the emerging systemic understanding of value co-creation within service research. This lack of fit with the reality within which most service practitioners operate can contribute to diminishing the relevance of service research and lead to false assumptions and misguided actions.

The purpose of this paper is to advance the understanding of organizational decision-making in service research with an application to government as service organization. We do so by, firstly, reviewing the existing literature on decision-making in service research. Through the use of a problematization process (Alvesson and Sandberg, 2011), we identify four assumptions of decision-making in the context of government as service organization that radically differ from the more traditional understanding of decision-making. These emerging assumptions stand apart from the traditional assumptions in that they are aligned

with a systemic understanding of the government as service organization in a continuously changing operational context, while the traditional assumptions are more reductionistic in their nature. Due to this, we call the emerging assumptions of organizational decision-making in service research as *dynamic decision-making assumptions*. To further advance the dynamic understanding of decision-making, especially in government as service organization, we then use the broader systems thinking literature as a method theory (Jaakkola, 2007), from which we draw aligned insights to further develop these assumptions into research propositions that shed light on the nature of dynamic decision-making and point to several important future research directions. Finally, this paper also provides practical guidelines to help the government as service organization in handling the greater uncertainty there are facing in their decision-making processes.

Decision-making in service organizations

Prior studies on service organizations have found decision-making competences to be highly influential to the success of service operations (Gilmore and Carson, 1996; Thwaites and Williams, 2006); concerning the government as service organization, significant attention is given to citizens' engagement/involvement (Bovaird, 2007) both in strategic decision-making processes (Klijn and Koppenjan, 2000) and in public services production/provision (Pestoff, 2006). Arguably decision-making competences are even more important today due to the turbulent context many service organizations are facing (Field *et al.*, 2021). While there have been continuous calls for more studies on decision-making within service organizations (Gilmore and Carson, 1996; Morris *et al.*, 2010; Holmlund *et al.*, 2016) to date, organizational decision-making has received only limited attention within service research. Curiously, there is notably more literature on how consumers make decisions in the various phases on the consumption journey potentially pointing to the dominance of marketing rather than the managerial perspective in service research.

The lack of service-aligned decision-making theory is problematic as it results in most articles within service research (implicitly) adopting a broader management view on decision-making in elaborating their implications for practitioners. This view is, however, found ill-suited for the service context (Morris *et al.*, 2010). This is because the traditional management view is developed with manufacturing organizations in mind and does not take into consideration the special characteristics, such as, intangibility, property's absence and the simultaneous production and consumption of the offering, with which service organizations deal with e.g. (Gilmore and Carson, 1996; Thwaites and Williams, 2006) and public government too (Kickert, 1997; Osborne, 1998; Baldi *et al.*, 2022). Furthermore, the generic management view on decision-making is not aligned with the emerging systemic understanding of value co-creation within service research (Gummesson *et al.*, 2014; Sharma and Conduit, 2016) nor the view of service organizations representing service systems (Badinelli *et al.*, 2012; Carrubbo *et al.*, 2017).

To understand the current state of organizational decision-making theorization in service research, we reviewed the papers published on the topic in the major service journals. Methodologically, we used a rigorous approach (described in Appendix Table A1) as it is resumed in the following process:

- first stage – Creating an output from Scopus and Web of Science with relevant Key words;
- second stage – Initial categorization per relevance;
- third stage – Identifying key papers; and
- fourth stage – Matching with a Google search.

Using a problematization process (Alvesson and Sandberg, 2011) to guide our conceptual analysis, we identified four pairs of decision-making assumptions from the existing literature. The problematization process involved a deep reading of the literature discussing decision-making in service organizations and uncovering explicit and implicit assumptions that the theorization within these papers was based on Alvesson and Sandberg(2011). Whereas a gap-spotting approach is used to identify or construct gaps in existing literature by identify competing explanations, to scan for overlooked areas or to search for shortages of a particular theory or perspective, the “problematization” supports in generating novel research questions through a dialectical interrogation of one’s own familiar position, other stances and the literature domain targeted for assumption challenging. The flow we followed for our conceptual analysis includes these steps:

- What main bodies of literature and key texts make up the domain?
- What major assumptions underlie the literature within the identified domain?
- Are the identified assumptions worthy to be challenged? What alternative assumptions can be developed?
- What major audiences hold the challenged assumptions?
- Are the alternative assumptions likely to generate a theory that will be regarded as interesting by the audiences targeted?

Table 1 gives an overview of the papers included in the conceptual analysis.

The identified decision-making assumption pairs demonstrate which is the traditional decision-making assumption that has been found ill-suited for the service context within the organizational decision-making literature in service research, and simultaneously an emerging, service-based decision-making assumption. These emerging assumptions are overall characterized by their alignment to a more “systems” understanding of government as service organization themselves as well as the context of which they are a part, and we, hence, identify them as dynamic decision-making assumptions. Both the traditional and the emerging, dynamic decision-making assumptions in service organizations are summarized in Table 2.

Together, these four emerging assumptions of decision-making within service research represent a significantly different foundation for theorizing about organizational decision-making. We identify this foundation to represent a more dynamic understanding of decision-making that shows how service literature is moving towards a more systems perspective. To further support and advance this development, identified as a priority within the field (Ostrom *et al.*, 2021; Field *et al.*, 2021), we draw from system thinking (ST) to further advance the emerging understanding of dynamic decision-making in service organizations.

Informing dynamic decision-making with systems thinking

In this section, we use ST as a theory (Jaakkola, 2007) to further inform the development of the four alternative assumptions emerging in service research regarding decision-making. According to Lukka and Vinnari (2014:1309), the main distinction of domain theory and method theory is as follows: domain theory is “a particular set of knowledge on a substantive topic area situated in a field or domain”, i.e. an area of study characterized by a particular set of constructs, theories and assumptions; method theory is a “meta-level conceptual system for studying the substantive issue(s) of the domain theory”. Due to its special features, ST well matches with this, especially concerning the organization of key phenomenon’s dimensions and implications and the explanation of relationships between

Paper	Focus	Research design	Focal service context	Key insights about decision-making
Grönroos (1990)	Conceptualizes a service management perspective for the management of organizations	Conceptual	Generic	Decision-making is a decentralized activity in a service firm
Gilmore and Carson (1996)	Identifies important competences for service managers to improve the quality of marketing decision-making in service context	Conceptual	Generic	Decision-making quality depends on the competences of the managers, which, in turn, are depended on their experiences and expertise
Thwaites and Williams (2006)	Discusses approaches to decision-making used in the emergency services and to relate these to decision-making in service encounters in the tourism and leisure sector	Conceptual	Tourism	Decision-making in service encounters is characterized by high levels of uncertainty.
Jaakkola (2007)	Purchase decision-making within professional consumer services	Conceptual	Professional consumer services	Decision-making is also done by employees (not just “managers”) Decision-making is distributed, multi-actor activity (service provider makes purchase decisions for the beneficiary)
Bone and Mowen (2010)	Studies the decision-making processes around customer selection and introduce service employees’ desire for decision latitude (DDL) as an individual difference construct that influences the processing of quantitative and qualitative information in such decision-making	Empirical, mixed methods	Banking	Decision-making is an activity in which individual difference exists and that is also done by employees (not just “managers”)
Morris <i>et al.</i> (2010)	Explores how decision-making in professional service firms differs in unique and consistent ways from traditional organizations such as manufacturing firms	Conceptual	Professional service firms	Decision-making in service organization is often complex and, thus, more affective than cognitive
Badinelli <i>et al.</i> (2012)	Draws from viable systems approach to discuss decision-making in uncertain contexts and offers an interpretation of complexity in the context of service systems	Conceptual	Generic	Decision-making deals with a complex and changing context that cannot be controlled
Eggett <i>et al.</i> (2014)	Examines the financial performance implications of industrial service strategies	Empirical, survey	Manufacturing	Decision-making benefits from decentralization within the service organizations

(continued)

Table 1.
Prior literature on decision-making in service organizations

Table 1.

Paper	Focus	Research design	Focal service context	Key insights about decision-making
<i>Gummeson et al. (2014)</i>	Studies how recasting supplier and customer roles influences the strategic decision-making of companies	Conceptual	Various service contexts	Decision-making deals with a complex and changing context that cannot be controlled
<i>Sharma and Conduit (2016)</i>	Conceptualizes organizational culture from a service-dominant perspective and provides a framework for a cocreation culture type that comprises five core cocreation behaviour: coproduction, co-development, co-advocacy, co-learning and co-governance	Empirical, multiple case study	Health care	Decision-making is a shared activity in service organizations that have a “co-creation” culture
<i>Carrubbo et al. (2017)</i>	Investigates the decision-making process in the management of the complex adaptive systems (CAS), particularly focusing on the dimensions that affect the individual decision-maker within fitting processes	Conceptual	Generic	Decision-making deals with a changing context.
<i>Holmlund et al. (2017)</i>	Explores how executive team members make sense of the market situation and changes within in and what is the role of mental models in this process	Empirical, abduction and interviews	Banking	Decision-making is driven by decision makers schemas and values Decision-making deals with a changing context.
<i>Dahl et al. (2021)</i>	Examines shared decision-making between patients and physicians and how this affects patient’s health accountability, digital information-seeking behaviour and patient health self-awareness	Empirical, structural equation modelling	Health care	Decision-making is driven by decision makers mental models Decision-making is a shared activity in which also the customers take active part

Source: Made by authors

the studied variables in the domain theory, as stated by Jaakkola (2007:tab.2,p. 5). More specifically, we draw insights from the general systems theory – GST (Bertalanffy, 1968; Boulding, 1956), complexity theory (CT) (Mitchell, 2009) and viable systems approach (VSA) (Barile, 2009), all found to be informative in further understanding the “systems” nature of service phenomena (Vargo and Lusch, 2011).

Dynamic decision-making assumption 1: decision-making is a shared, multi-actor activity

First one of the dynamic decision-making assumptions highlights that decision-making in connection to service phenomena is not an activity limited to only managers. Rather, decision-making is a shared activity in which all value co-creating actors (e.g. customers, front-line employees) are part of. The shift from viewing decision-making as a phenomenon in which only individual, highly specialized actors (e.g. managers) are active into a phenomenon involving multiple active actors, points to the importance of understanding decision-making through a systems lens. The “multi-actor perspective” in ST allows perceiving service organization as labels for patterns of activities that are generated by human actions and their accompanying efforts (Smircich and Stubbart, 1985). In essence, decision-making in service organizations can be seen as a tangled Web of interactions among multiple actors. Of course, this is true for government as service organization too, due to the multi-part essence of government configuration itself.

To further understand decision-making as the outcome of such Webs of multi-actor interactions, we draw from CT (Mitchell, 2009). CT studies complex adaptive systems (CAS) that form from the interactions of multiple adaptive agents (Holland, 2014). Applied to service research, CT allows looking at service organizations (as well as governments) as CAS. CT highlights that such systems are dynamic and massively entangled (Eoyang and Berkas, 1998), exhibit self-organization (Begun et al., 2003) and are sensitive to small changes in their initial conditions (Mitchell, 2009). Another distinctive property of CAS is the emergence (Holland, 2014). Emergence refers to the process through which a *new whole* results from the *interactive combination* of constituent elements, for which the *properties of the whole cannot be explained by the properties of the constituent elements* alone (Vargo et al., 2022: 3). In other words, decision-making in government as service organization, as the aggregated interactions of elements (e.g. service employers, municipal agents, hi-tech enablers and customers), exhibits properties not attained by summation, but are emergent and characterized by non-linearity and unpredictability (Holland, 2014).

CAS are also hierarchically organized, meaning that a focal system consists of sub-systems which themselves have sub-systems, while the focal system is itself a sub-system to another nested system (Simon, 1996). This is aligned with Polese et al. (2016), who argue the various groups of potential stakeholders of service organization can be identified as their

Traditional decision-making assumptions	Dynamic decision-making assumptions
Only “managers” engage in decision-making	Decision-making is a shared, multi-actor activity
Decision-making is an isolated activity	Decision-making is an interconnected activity
Decision-making deals with a generally static context	Decision-making deals with a continually changing context
Decision-making is an objective and rational activity	Decision-making is inter-subjective and heuristic activity

Table 2.
Traditional and
dynamic decision-
making assumptions
within service
research

Source: Made by authors

supra-systems or sub-systems. Supra-systems are external and hierarchically ordered based on critical resources they possess and their influence on the focal organization (e.g. supply, distribution, end-consumers, public administration, media), while sub-systems (e.g. business units, teams of employees) are internal. This is perfectly applicable to the layered design of government as service organization (with multiple levels and a significant number of sub-systems) and the emergence they exhibit, that increase the difficulty in predicting the outcomes and consequences of decision-making (Polese *et al.*, 2021).

Dynamic decision-making assumption 2: decision-making as an interconnected activity

The second dynamic decision-making assumption emphasizes that decision-making by one actor or an organization does not occur in isolation from others. ST is also informative in further understanding the nature of such interconnectivity. In GST, events and phenomena are studied, not particularly because of their own importance, but rather because they have been observed in a specific context (Ashby, 1957), in which every action can be seen as something resulting from the interaction among several elements forming the system (Laud *et al.*, 2015). Further, all the elements of a system are said to be connected in a meaningful way, due to stated and unstated purposes (Luhmann, 1984) and behave differently when in the presence of other elements operating in the same path, rather than when they are alone (Bertalanffy, 1968). In other words, ST enables the introduction of a “holistic view” to decision-making in service organization. The holistic view is more insightful than the traditional reductionist view as it aids in perceiving decision-making as a whole (Parsons, 1971), including weak surrounding signals (Laszlo, 1996) and the influence other’s decisions and consequent behaviours. The holistic view pays extensive attention on the connections between system entities rather than the role of a single entity itself (Boulding, 1956), and the possibility to potentially interact and combine complementarities of partners rather than their own intrinsic differences (Christopher, 2007; Polese *et al.*, 2018).

ST also allows to reframe the “environment” within which decision-making takes place. While the traditional decision-making literature might highlight the “objective” nature of the environment within which decision-making occurs, systems-thinking informed decision-making highlights its enacted nature (Mele *et al.*, 2010). In the latter, an environment is understood as a “mental representation embodied in a cognitive structure which is enacted in retrospect and fashioned out of the discrete experiences of managers” (Brownlie, 1994:147). Consequently, each decision-making actor can be seen to be immersed and entangled in something bigger of which it is inevitably part of. Each context, as it is personally perceived by every observer, represents the sum of prior interactions by that observer.

Furthermore, concerning governments, the context of decision-making includes a number of directly and indirectly linked entities (Ashby, 1957) that are able to influence each other through feedback (Meadows, 2008). Consequently, interactions within systems can be studied either as hinders or enablers of action, according to the different and subjective way in which any entity perceives each other (Capra, 1997). The resulting feedback loops that either balance or reinforce action (Stermann, 1994) can, thus, result from the decision-making of other actors or the past decision-making of the focal actors. In addition, the relevance of any stakeholder can change over time, reciprocally contributing to the evolution of the context itself, stimulating all actors to evolve and adapt their behaviour (Carrubbo *et al.*, 2015). Thus, ST allows interpreting firm-level actions such as decision-making in government as service organization as part of collective action that leads to wider systemic outcomes.

Dynamic decision-making assumption 3: decision-making continually deals with changing context

The third dynamic decision-making assumption views the context of decision-making dynamic, rather than static. This is supported by ST in which change is seen to be “the general state of things” (Watzlawick *et al.*, 1974). In other words, while change can take various forms, for example, be incremental, radical, temporary or permanent, it is inevitable. Constant change also implies that what is “true” now, may not be valid and acceptable tomorrow, boundaries may change or become unclear as the decision-making systems evolve to explore other avenues for success or to avoid failure. To deal with such a constant change, the VSA highlights the importance of “cognitive alignment” with the surrounding context and the decision-making entity (Barile *et al.*, 2012). Cognitive alignment refers to the structural coupling of understandings, statements and evaluations made by people, on a specific matter in the same circumstance, that is needed in order for any system to be embodied (Clark, 1993). This links with main constructivist assumptions dealing with how knowledge is conceived as a construction of personal experiences rather than an objective representation of an independent reality (Kelly, 1955).

Cognitive alignment depends on the possibility to match learning experiences within the evolving context. It signifies that when decision-makers are able to align their aims to the aims of the context in which they operate, there is an increased probability of succeeding in achieving their goals and survive in the long run, even if that context continually changes (Polese *et al.*, 2022). This occurs by actors assessing whether there is an alignment between their personal goals and the collective ones, through a thorough understanding of the dynamics within their environment, exactly what happens in governments’ mode of action. Cognitive alignment in government as service organization aids in making organizational strategies and processes more adherent to contextual expectations and appropriately fitting with evolving needs. It does so due to the continuous and dynamic “match” between decision-makers’ increasing knowledge and know-how. System’s “consonance” (Barile, 2009) supports in understanding this dynamic, because it deals with interactions among observed actor and others operating in the same path and related somehow with it. Systems consonance concerns the alignment of actors in terms approaches, way of doing things, visions and motivations to work. Consequently, it is strictly linked to cognitive alignment and helps observers’ analyse in depth, why such an alignment has occurred, when an effective match does occur (Barile and Saviano, 2008). This is because consonance can precisely affect the potential compatibility of actors (consciously or subconsciously) working together in the same path (Barile, 2009). In this sense, being consonant within a specified context, as government effectively is and thus appropriately demonstrating convergence to the contextual expectations, is a fundamental requirement for organizations’ competitiveness over time. In essence, systems consonance expresses how “in sync or in harmony” actors can work between each other and is imperative for organization long-term survival.

Dynamic decision-making assumption 4: decision-making is subjective and heuristic

The fourth dynamic decision-making assumption stresses the subjective and heuristic, rather than objective and rational, nature of decision-making. According to ST, specific reflections on contingences and external changes include a great variety (in a stated time, i.e. status quo) and variability (during the time, i.e. *in-itinerary*) of situations and conditions in any period of interest (Fiedler, 1967). This is because of the interconnectedness, the effects and the non-linear dynamics dealt with Waldrop(1993), which can be reinforcing and balancing, at the same time (Serman, 1994). The related complexity, which is always

subjective, implies difficulties for business activities at all levels and shows the importance of individual ability to approach problems, avoid mistakes and solve complications (Ng *et al.*, 2012).

In accordance to this, the VSA argues that the decision-making actor uses their personal “information variety” which spans in three levels: general information units, filtering interpretation schemes and strong beliefs (Barile *et al.*, 2012; Polese *et al.*, 2022). General information units (a concept deriving from cybernetics) refer to the singular facts, features or elements describing every observed phenomena as shown through data, measured in bits and classified by a multiset of symbols, while filtering interpretive schemes and beliefs. These are a mix of knowledge endowment, value categories and strong beliefs (a sort of personal interpret code), allowing each individual to analyse and give specific meanings to observed phenomena (Ashby, 1957). This collection of information appears significantly different for each actor, as decision-maker and it depends on the personal ability to “read” the surrounding signals and single events, as it is formed and influenced by individual expertise, culture, way of doing things (due to deep and strong beliefs).

In addition, ST highlights that the uncertainty stemming from the nature of system outcomes is a crucial element in making decisions (Barile *et al.*, 2013) as it invalidates predictions, estimations, anticipations and plans in a subjectively perceived context (Mishra *et al.*, 1998). In other words, ST implies that decision-making is heuristic due to an individual’s capacity to encounter strategic issues by using an intuitive and epistemological approach and delving to the deep significance of things. Comprehending this, is the first step to reduce the chaos surrounding the system and help in rightly focusing on what is relevant and what is not, on how it is possible to catch helpful nudges from the outside and whether there are settings appropriate enough to anticipate new future trends or not (Von Foerster, 1981), very important for public activities valid in government as service organization. This is personal subjective, and may be originating from background specific stimuli, previous lessons learnt, as well as the individual ability to identify and elaborate on new information, to be used in future decisions (Gaeta *et al.*, 2019).

The four emerging dynamic assumptions of decision-making in service organization elaborated above, imply an understanding of decision-making that is built upon fundamentally different premises than the traditional decision-making literature. These premises are well-aligned with insights from ST, which help to further concretize the conceptualization of dynamic decision-making, especially in a government as service organization. To take this process further, the insights from ST discussed in this section are formulated into research propositions regarding dynamic decision-making, in the following section.

Dynamic decision-making: research propositions and future research agenda

Based on the above insights from ST, this section formulates eight research propositions (Uлага *et al.*, 2021) to guide further research on the nature and consequences of dynamic decision-making within the government as service organization. These research propositions and connected future research questions are summarized in Table 3.

The systems insights that are particularly informative regarding the first dynamic decision-making assumption of decision-making being a shared, multi-actor activity are the layered nature of the CAS taking part in decision-making and the emergent nature of the outcomes produced by the interactions of such systems. These insights demonstrate that in analysing and evaluating on-going phenomena, decision-makers cannot clearly identify all the needed variables, nor their cause-effect relationships, due to the significant intricacy that characterizes these interactions (Barile, 2009). In other words, it is highly unlikely that there

Dynamic decision-making assumptions in service research	Systems thinking informed research propositions	Future research questions
Decision-making is a shared, multi-actor activity	RP1: decision-making in service organizations is a process occurring within complex adaptive systems composed of multiple subsystems. RP2: the outcome of a decision-making process is an emergent property and as such always characterized by a degree of unpredictability	What types of actors and/or systems of actors are involved in organizational decision-making? How does the variety of decision-making actors influence decision-making as an activity? How can a more conscious multi-actor decision-making process be implemented in organizations? How can the unpredictability of decision-making be accounted for already within the process of making decisions?
Decision-making is an interconnected activity	RP3: the decision-making by one service organization is influenced by the decision-making of other actors through multiple feedback loops. RP4: decision-making is characterized by a feedback loop in which the implications of prior decisions inform the future decisions	What kind of forms do the feedback loops from other actors decision-making processes take in service organizations? How do the decision-making processes of several service organizations interact with one another? How do the prior decisions influence future decision-making within a service organization?
Decision-making deals with a continually changing context	RP5: decision-making actors are themselves part of the context for other decision-making actors. RP6: cognitive alignment is a process of co-evolution with the decision-making actor and its context	How do service organizations and other actors influence each other's decision-making? What are the consequences of decision-making if cognitive alignment is missing? How can cognitive alignment between a decision-making actor and its context be improved?
Decision-making is subjective and heuristic	RP7: personal information variety influences decision-making. RP8: decision-making actors differ in terms of their information variety affecting decision-making	How does personal information variety influence decision-making? To what extent do managers in service organizations yield different interpretation from the same data? What are the negative and positive consequences of personal information variety for decision-making?

Table 3.
Research propositions and future research questions for dynamic decision-making in service organizations

Source: Made by authors

will be a complete understanding of how decisions are being made. This is due to the high unpredictability of the emergent phenomena (Vargo *et al.*, 2022) in rapidly changing environments (Ostrom *et al.*, 2021). Thus, the introduction of CT appears to be highly fitting here, as organizations (and governments) may well be composed of multiple sub-systems and are inevitably immersed in a continually evolving path. From studies on CAS, when studying organizations and their behaviour, it is observed that while many systems are

complex, not all are adaptive (Dooley, 1996; 1997). To more accurately comprehend the way in which decisions are being made in everyday life, this oughts to be investigated deeper and more thoroughly, leading to the formulation of the following research proposition:

RP1. Decision-making in service organizations is a process occurring within complex adaptive systems composed of multiple subsystems.

As decision-making is a shared, multi-actor activity occurring within a layered design of organizations (like governments), where there are multiple levels of interaction and a high number of subsystems. This increases the difficulty in predicting dynamics, effects, outcomes and consequences of decisions and is a direct result of the involvement of a multitude of actors in the decision-making process. These actors potentially have numerous and varying perspectives, non-convergent approaches and unstable relationships (Bruni *et al.*, 2017). The more the participating subsystems are, the greater the unpredictability may be. Accordingly, the second research proposition is formulated as follows:

RP2. The outcome of a decision-making process is an emergent property and as such, it is always characterized by a degree of unpredictability.

Together, these two research propositions point to several intriguing future research questions. Firstly, to more thoroughly comprehend the multi-actor nature of decision-making, it is important to uncover what types of actors and/or systems of actors are involved in decision-making in service contexts (think on the number of actors operating in governments). Prior service research, has already established that in addition to managers, employers and customers play a significant role in organizational decision-making (e.g. Gebauer *et al.*, 2010; Sharma and Conduit, 2016; Dahl *et al.*, 2021). However, with further insights stemming from a systems perspective it is possible to identify additional stakeholder groups that affect the decision-making process. This is especially relevant in the context of governments, that can have large societal consequences, such as education, health care, transports and energy delivery. To interpret the some insights of complexity for decision-making into practice, it is important for future research to study how more conscious multi-actor decision-making processes can be implemented in governments as service organizations. As part of this, it is crucial to additionally examine how the multiplicity of decision-making actors influences decision-making as an activity and how the unpredictability of this activity can be accounted for already in the process of decision-making.

The second dynamic decision-making assumption, where the process of decision-making is highlighted as an interconnected activity, when viewed through a systems thinking lens, demonstrates the importance of a holistic view and the role of feedback. The holistic view stresses the connections and interdependence of system entities, while feedback can be considered as the mechanism of influence between such entities. In terms of decision-making, "learning is a feedback process in which our decisions alter the real world, and receive information feedback about the work and revise the decisions we make and mental models that motivate those decisions" (Sterman, 1994:291). For an analysis of a single decision-making actor, such as, a government as service organization, this implies the presence of other decision-making actors, who may influence or be influenced by the actions of the focal actor through feedback. Furthermore, the focal actor is most likely influenced simultaneously by several different feedback loops making the decision-making process even more complex. Based on this, the third research proposition is formulated as follows:

RP3. The decision-making by one service organization is influenced by the decision-making of other actors through multiple feedback loops.

All this implies a new way of thinking in terms of voluntary cooperations and a sense of membership, even based on non-linear or not obvious reasons. The emphasis of feedback in ST also points to how the past decision-making can create a number of implications for future decisions, demonstrating that past behaviours may act as conditions for future decision-making. Consequently, the fourth research proposition is stated accordingly:

RP4. Decision-making is characterized by feedback loops in which the implications of prior decisions inform future decisions.

Based on these two research propositions several new directions for future research arise. For example, to operationalize the nature and role of feedback in organizational decision-making in governments as service organization it would be important to uncover what form do the feedback loops from other actors take in decision-making processes. In addition, it would be important to both conceptualize and empirically study how the decision-making processes of several service organizations interact with one another. To account for the temporal dimension in feedback, service research should also trace how prior decisions influence future decision-making of the government as service organization.

ST implies that decision-making continually deals with a changing context rather than a static environment, as stated before with the third dynamic decision-making assumption. The inter-dependence and influence of the multiple decision-making actors on one another, discussed above and the reframing of the decision-making context to something that is enacted (see [Mele et al., 2010](#)) highlights that a focal service organization and its decision-making become part of the decision-making context for other actors. Accordingly, the fifth dynamic decision-making research proposition is formulated as following:

RP5. Decision-making actors are themselves part of the context for other decision-making actors.

Furthermore, the changing nature of the decision-making context requires the government as service organization to develop their cognitive alignment with their context to be able to respond to changes when needed. This highlights the importance of dynamic attitudes that organizations can adopt to compete over time and leads to the synchronization between intentions and actions. This allows for a gradual improvement of behaviours that can be described as co-evolution ([Parente and Petrone, 2011](#)). Based on this, the sixth research proposition reads as follows:

RP6. Cognitive alignment is a process of co-evolution between the decision-making actor and its context.

The research propositions related to the dynamic decision-making assumption of continually changing context, point to formulating additional research questions. Firstly, it would be crucial to uncover all the various ways of how in government as service organization actors influence each other's and other actors' decision-making processes. In regard to cognitive alignment, service researchers should further examine both the consequences of decision-making in the case of absence of cognitive alignment as well as how cognitive alignment between a decision-making actor and its context, may be improved.

To face the complexity of the decision-making context, ST highlights that decision-making actors use their personal “information variety” (Barile *et al.*, 2012) as seen before with the fourth dynamic decision-making assumption. The way in which the interpretation schemes, that comprise personal information variety are formed and used depends on categorical values, through which we look, understand and experience the world, helping to determine the degree of relevance and meaningfulness of different kinds of knowledge (Barile, 2009). They represent the subjective filter through which the interpretation schemes are customized and are usually shared between individuals belonging to specific social communities. For this reason, all actors do not have the same capacity to effectively understand what is going on and how that can be relevant or crucial for them. Thus, the final two research propositions are the following:

RP7. Personal information variety influences decision-making.

RP8. Decision-making actors differ in terms of their information variety affecting decision-making.

These last two research propositions suggest that decision-making is not just dynamic but also subjective and heuristic in its nature. This points to the importance of studying the way in which managers in the government as service organization will yield different interpretations from the same data or information, to better understand their information variety and its influence in decision-making. Additional research is also essential in uncovering both the negative and positive consequences that personal information variety has for decision-making in the government as service organization and how these can be better accounted for and handled in the process. In conclusion, further research is needed in order for service organizations to firstly, learn how to acknowledge information variety and determine how it affects decision makers (positively or negatively) and secondly, develop and integrate mechanisms in their decision-making processes to mitigate or even “exploit” this to their advantage.

Implications

Undoubtedly, governments as service organizations are currently experiencing an unprecedented amount of continuous and back-to-back disruptions (Pollitt and Talbot, 2004), from digitalization, to pandemics as well as global wars and the increasing impacts of SGDs as a connection between the environmental, social and economic aspects of sustainable development, first in terms of Reduced inequalities (SDG 10), Sustainable cities and communities (SDG 11), Responsible consumption and production (SDG 12), Life on land (SDG 15), Peace, justice and strong institutions (SDG 16). This is making it increasingly clear that service organizations are often (if not always) facing a turbulent environment (Ostrom *et al.*, 2021) which requires a decision-making approach that takes into consideration the broader system of which the organization is a part of.

This helps to properly focus on several mode in actions of governments intended as service organizations, concerning (for instance) moral hazards situation, where an entity has the incentive to increase its exposure to risk because it does not bear the full cost of that risk. In the context of government decision-making, this could manifest in various ways, such as policy decisions being influenced by the prospect of political gain rather than public welfare.

This paper makes a three-fold contribution to the discussion of organizational decision-making within service research. Firstly, through a problematization process, it identifies four assumptions of decision-making from service literature that drastically differ from traditional decision-making assumptions and highlights the uniqueness of decision-making

theorizing in the service context. Secondly, it advances these assumptions into eight research propositions regarding dynamic decision-making in service organizations by drawing on aligned insights from ST. Thirdly, it offers for a research agenda to guide further research in this area so that service research can better help the government as service organization in operating and surviving in the current and future environment, that presents an evidently increasing uncertainty that directly affects decision-making processes. These three contributions have significant theoretical and practical implications discussed in the following sections. Regarding this last aspect, a list of guiding questions for practitioners has been outlined and collected in [Table 4](#), to start the process of self-reflection.

Conclusions

Turbulence is becoming a dominant feature in most service contexts. The growing uncertainty that government as service organization must deal with accentuates the importance of well-informed decision-making. In this paper, we have synthesized developments regarding organizational decision-making and show how this literature is moving towards a more systemic perspective. The theorizing on decision-making in service research highlights the short-coming of the traditional decision-making theories and shows how they are not applicable in the service context. The traditional decision-making

Dynamic decision-making assumptions in service research	Guiding questions for practitioners
Decision-making is a shared, multi-actor activity	<p>Which actors are formally involved in today's decision-making processes?</p> <p>Are there actors who make decisions within the organizations, but are not formally identified to have such a role?</p> <p>Do we have an overview of the aggregated outcomes of the decision-making within the organization?</p> <p>Are the multiple decision makers within the organization aligned in their decision-making?</p> <p>How do we account for unpredictability in our decision-making processes?</p>
Decision-making is an interconnected activity	<p>Do we have an overview how decision-making by others influences our decision-making processes?</p> <p>How do we account the implications of our previous decisions in our decision-making processes?</p>
Decision-making deals with a continually changing context	<p>How do we account for the continual change in our context?</p> <p>How do we ensure our consonance and alignment with our context to make the right decisions at the time?</p> <p>How much deep possible re-configuration or re-organization or re-thinking should be to efficiently evaluate, select and adopt new decisions?</p>
Decision-making is subjective and heuristic	<p>Do we have an overview of the personal information variety that exists within the organizational decision makers?</p> <p>Do we have training to improve the interpretation of what is going on (e.g. study of weak signals, unintended consequences)?</p> <p>How, through learning and experiencing, do we improve our subjective capacity to make new (useful) decisions under increasing uncertainty?</p>

Table 4.
Guiding questions for practitioners for a dynamic decision-making

Source: Made by authors

assumptions view decision-making as an isolated activity, performed by “managers”, which is objective, rational and can be based on static information and predictions formed by historical data. However, by tapping into the limited yet valuable service research on decision-making and further informing it with ST, we see that decision-making is actually a shared, multi-actor and interconnected activity that occurs within a continually evolving context and is inter-subjective and heuristic. Based on this advanced view, the eight research propositions discussed above, demonstrate the complex, multi-actor, interconnected and unpredictable nature of the context in governments as service organizations need to form their decisions in, by taking into account the effect of feedback loops, cognitive alignment and personal information variety, in their decision-making process. We hope that the offered research propositions and the connected research agenda for a dynamic understanding of decision-making in service research encourage scholars in embracing a more holistic view on this issue.

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Further reading

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Appendix

Stages	Search /criteria	Results
Creating an output from Scopus and Web of Science with relevant keywords	TITLE-ABS-KEY ("decision making" and service) AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "DECI")) AND (EXCLUDE (SUBJAREA, "ECON")) OR EXCLUDE (SUBJAREA, "MATH") OR EXCLUDE (SUBJAREA, "MED") OR EXCLUDE (SUBJAREA, "ENVT") OR EXCLUDE (SUBJAREA, "PSYC") OR EXCLUDE (SUBJAREA, "ENER") OR EXCLUDE (SUBJAREA, "ARTS") OR EXCLUDE (SUBJAREA, "AGRI") OR EXCLUDE (SUBJAREA, "NURS") OR EXCLUDE (SUBJAREA, "HEAL") OR EXCLUDE (SUBJAREA, "MATE") OR EXCLUDE (SUBJAREA, "CENG") OR EXCLUDE (SUBJAREA, "EART") OR EXCLUDE (SUBJAREA, "PHYS") OR EXCLUDE (SUBJAREA, "PHAR") OR EXCLUDE (SUBJAREA, "CHEM") OR EXCLUDE (SUBJAREA, "BIOC") OR EXCLUDE (SUBJAREA, "VETE") OR EXCLUDE (SUBJAREA, "NEUR") OR EXCLUDE (SUBJAREA, "MULT") AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English"))	3,371 Limited only to journal articles
Initial categorization per relevance	Carefully going through the list, keywords and in some cases, abstracts to eliminate all papers not <related to the initial search and categorizing them per relevance to our subject, by taking into account that: <ul style="list-style-type: none"> - Mix between empirical and theoretical papers, most are based on the industry. - The vast majority of papers focus on a specific sector such as finance, ICT with a focus on B2B services. - The majority of papers look at organizational aspects of firms (that might be due to our own biases). - Many papers, especially more recent ones have a focus on technology. - The focus of most papers appear to be on mid-long term decision-making. 	800 Remaining papers
Identifying key papers	After identifying all relevant journals, we manually went through the list and critically selected the most relevant ones, by firstly the title (many could be solely eliminated by that keywords and then abstract. We excluded all papers that focus on consumers and non-B2B customers, tourism and patient-related health care, as well as social marketing. We were careful to not exclude the papers in these sectors that talk about organizational aspects and focus on firms "Decision-making" and service: source: "Journal of Marketing" OR source: "Journal of Consumer Research" OR source: "Marketing Science" source: "Journal of Marketing Research" OR source: "International Journal of Information Management" OR source: "Journal of the Academy of Marketing	60 Q1 journal papers Ranked per citation count
Matching selected Q1 journals with google search		13 Grönroos (1990) Gilmore and Carson (1996)

(continued)

Insights from systems thinking

Table A1. Literary review process

Table A1.

Stages	Search /criteria	Results
	<p>Science" OR source: "Academy of Management Perspectives" OR source: "Journal of Public Administration Research and Theory" source: "Journal of Marketing Research" OR source: "International Journal of Information Management" OR source: "Journal of Interactive Marketing" OR source: "Journal of Supply Chain Management" source: "Quantitative Marketing and Economics" OR source: "Public Administration Review" OR source: "Journal of World Business" OR source: "Journal of Advertising" source: "International Journal of Research in Marketing" OR source: "Journal of Retailing" OR source: "Business Horizons" OR source: "Journal of Business Research" OR source: "Journal of Retailing and Consumer Services" source: "Industrial Marketing Management" OR source: "Journal of Purchasing and Supply Management" OR source: "Journal of Innovation and Knowledge" OR source: "Journal of Travel and Tourism Marketing" OR source: "Journal of Hospitality Marketing and Management" source: "Journal of International Marketing" OR source: "Public Relations Review" OR source: "Journal of Interactive Advertising" OR source: "Journal of Destination Marketing and Management" OR source: "International Journal of Advertising" OR source: "Marketing Theory" OR source: "International Business Review" source: "Journal of International Marketing" OR source: "American Review of Public Administration" OR source: "Journal of Services Marketing" OR source: "Sport Management Review" OR source: "Journal of Research in Interactive Marketing" OR source: "Governance" OR source: "European Journal of Marketing" source: "Journal of the Association for Consumer Research" OR source: "Consumption Markets and Culture" OR source: "Electronic Commerce Research and Applications" OR source: "Journal of Advertising Research" OR source: "International Marketing Review" OR source: "Journal of Marketing Management" OR source: "Journal of Consumer Culture" source: "Marketing Letters" OR source: "Psychology and Marketing" OR source: "Journal of Public Policy and Marketing" OR source: "Administration and Society" OR source: "AMS Review"</p>	<p>Thwaites and Williams (2006) Jaakkola (2007) Bone and Mowen (2010) Morris <i>et al.</i> (2010) Badinelli <i>et al.</i> (2012) Eggert <i>et al.</i> (2014) Gummeson <i>et al.</i> (2014) Sharma and Conduit (2016) Carrubbo <i>et al.</i> (2017) Holmlund <i>et al.</i> (2017) Dahl <i>et al.</i> (2021)</p>

Source: Made by authors