

# Resilience capacities and management control systems in public sector organisations

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332

Received 30 October 2019  
Revised 3 April 2020  
29 September 2020  
Accepted 4 November 2020

## Abstract

**Purpose** – In spite of the attention resilience receives in relation to public policy and public management, very few studies have analysed the internal mechanics of public sector organisations to see what is producing their resilience. Considering management control systems (MCSs) as the drivers of organisational change, this paper aims to explore their role as determinants of resilience in the public sector. The paper attempts to open the black box of organisational functioning focusing on one complex component.

**Design/methodology/approach** – This paper adopted a qualitative approach for this longitudinal case study. This paper used a mix of primary and secondary sources in terms of direct observation, semi-structured interviews and internal document analysis. This paper used a framework drawing on [Barbera et al. \(2017\)](#) and management control's constraining and facilitating concepts to explore how anticipatory and coping capacities of resilience are supported and reinforced by MCSs.

**Findings** – Findings suggest that MCSs support adaptive behaviour and assist decision-making by providing knowledge and ready-to-use answers to cope with external shocks. However, this is found in case of the adoption of facilitating MCSs, which empower managers and employees and are based on stewardship roles. In such a context, MCSs played an essential role in shaping anticipatory and coping capacities. At the same time, financial shocks fostered the investment in MCSs, cyclically strengthening or developing new anticipatory and coping capacities.

**Originality/value** – To the best of the authors' knowledge, this paper is one of the first attempting to identify how facilitating MCSs, as a driver of organisational change, can make an organisation more resilient. It shows how resilience capacities are generated and strengthened via MCSs.

**Keywords** Management control, Resilience, Public sector

**Paper type** Research paper

## 1. Introduction

In many countries, financial, economic and social crisis have challenged the delivery capacity of public sector organisations ([Bracci et al., 2015](#); [Leslie and Canwell, 2010](#)).

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*Funding:* The research was financially supported by Ferrovie Emilia-Romagna (FER).

*Acknowledgements:* The authors wish to thank the journal editor and two anonymous referees for the support provided in the revision of the paper. The author also wish to thank the participants and discussant of the Congress of the International Institute of Administrative Sciences, 25-29 June 2019, Tunis, Tunisia. Despite the shared effort in the writing of the paper, its parts can be attributed as follows: §1, 4, 6 and 7 to Enrico Bracci; §2, 3 and 5 to Mouhcine Tallaki.



Organisational resilience (i.e. the ability to survive and potentially even thrive in times of crisis) may help to face this challenge and contribute to keep business as usual or even improve performance (Lee *et al.*, 2013). A crisis is a vector of organisational change in public organisations (Rochet *et al.*, 2008), even though the approaches may be different (Barbera *et al.*, 2017).

The literature on resilience is far from new (Bhamra *et al.*, 2011). Scholars have investigated resilience in relation to crisis and disaster management (Boin and Lodge, 2016); the transformational characteristics of resilient organisations (Fitzgerald and Lupton, 2015); the value-sets implemented to respond to austerity fiscal shocks (Stark, 2014); and resilience as a strategic level of change (Rochet *et al.*, 2008). In spite of the attention resilience gets in relation to public policy and public management, very few studies analyse the internal mechanics of public sector organisations to see what is producing their resilience capacities, enhancing their response to external shocks (Hopwood, 2009; Van der Stede, 2011). Barbera *et al.* (2017, 2020) call for further work about the role of accounting technologies to support organisational resilience. Understanding from in-depth observation of the functioning of control practices in the context of financial crises still represents an under-investigated area of research (Bracci *et al.*, 2015; Van der Stede, 2011). Aagaard and Pedersen (2014) call for further research to clarify the degree to which public managers adapt their managerial technologies in an era of austerity. In this vein, Sciulli *et al.* (2015) argue that within the internal determinants, management control systems (MCSs) have not been investigated in depth. Moreover, MCSs are considered as the driver of organisational change (Nuhu *et al.*, 2019). Change and resilience are connected (Rochet *et al.*, 2008), as the need for organisations to adapt to their changing operating environment, i.e. external crisis, makes the focus on organisational change essential (Chiang, 2010). Accordingly, MCSs could be considered as a driver of resilience given the uncertainty and unpredictability in time of crisis as well as of organisational change (Van der Kolk *et al.*, 2015).

This paper aims at contributing to this literature by exploring the role of MCSs as determinants of resilience in the public sector, in relation to organisational responses to harsh fiscal conditions. We tried, therefore, to open the black box of organisational functioning at the specific level of analysis. We draw on the framework of Barbera *et al.* (2017), and management control concepts of constraining and facilitating control (Van der Kolk *et al.*, 2015), to highlight how MCSs are used by decision-makers to cope with austerity programs and support the creation of resilient organisations.

The remainder of the paper is structured as follows. Section 2 presents a literature review of the available studies looking at resilience in the public sector. We then discuss the theoretical framework of analysis, the methodology we used and the empirical material of the case study. The paper ends with a discussion and some final reflections.

## 2. Literature analysis: resilience in the public sector

Organisational resilience is the ability to effectively absorb, develop specific responses to and engage in transformative activities to capitalise on disruptive surprises that potentially threaten organisational survival (Lengnick-Hall *et al.*, 2011). The literature views resilience in terms of the ability to return to the previous state of perceived “normality” (engineering perspective) or as the capacity to recover from a crisis by following the sequence of rescue, restoration of damaged infrastructure and then the rebuilding of markets (ecological perspective) (Barbera *et al.*, 2017; Davoudi *et al.*, 2012). In this latter perspective, organisations could not only persist but also adapt their structure under the new conditions, implying a process of gradual change as a new business concept emerges that is different to the pre-crisis period (Dahles and Susilowati, 2015). The ecological perspective recognises the

existence of multiple equilibria and the possibility of systems to switch into alternative stability domains (Davoudi *et al.*, 2012). Accordingly, resilience can be planned (anticipatory) and adaptive (coping with). Planned resilience involves the use of existing, predetermined planning capabilities, whereas adaptive resilience emerges as a response to a crisis or other emergent situation (Lee *et al.*, 2013).

The concept of organisational resilience can be described as a characteristic or an outcome when organisations face adverse conditions (Carden *et al.*, 2018). Several internal and external factors support organisations to be resilient, and these also affect the professional identity of managers and employees (Barbera *et al.*, 2017). Identifying these determinants of resilience can help in understanding how to create better-performing organisations. This is because, as highlighted by Fraser *et al.* (1999, p. 136), “[i]f we can understand what helps some people to function well in the context of high adversity, we may be able to incorporate this knowledge into new practice strategies”. Accordingly, organisations need to understand their strengths and weaknesses in relation to resilience and must be able to evaluate the effectiveness of resilience strategies (Lee *et al.*, 2013).

Few studies have explored public sector organisations’ responses to crises and paid scant attention to the managerial factors involved (Barbera *et al.*, 2017). Boin and Lodge (2016) argue that public administration scholars should incorporate crisis and disaster management into the main research agendas of the field as they help to develop the capacity to treat risks and better prepare for, respond to and recover from crisis episodes (Drennan *et al.*, 2014). Fitzgerald and Lupton (2015) find that the capacity for local government organisations to bounce back from external shocks corresponds to the concept of resilience as transformation. Accordingly, Lowndes and McCaughie (2013) argue that local government has an impressive capacity to act and reinvent its institutional forms to weather a perfect storm. Stark (2014) highlights that bureaucratic value-sets relating to efficiency and procedural rationality that are implemented as a response to fiscal austerity have profound consequences for an organisation’s resilience. This is because procedural rationality is incompatible with the flexible–adaptable model that characterises resilience. Conversely, Rochet *et al.* (2008) consider that crises can offer public organisations a strategic lever to manage change and increase organisational resilience. In this sense, decision support systems, carefully designed and implemented, could assist public managers in reducing risks as they facilitate information flow within organisations (Comfort, 2012). Moreover, resilience is multifaceted and depends on a variety of dimensions and characteristics (Linnenluecke, 2017). Various studies have analysed the characteristics that help organisations to be resilient. Comfort (2012) specified that building networks of organisations and integrating adaptive learning in times of crisis helps organisations to be more flexible and robust and thus more resilient (Comfort, 2005). Furthermore, communication, understanding employee stress and having a tendency for explicit change management could determine organisational attitudes that increase resilience (Shannon, 2017). This is because the creative climate in an organisation is significantly associated with innovation and organisational resilience (Mafabi *et al.*, 2015). Resilience can also be influenced by an organisation’s strategy and its slack resources, culture and organisational structures (Bruneau *et al.*, 2003; Weick, 1993). Another critical element that could be crucial for resilience is the presence of political leaders who facilitate resilient behaviour in times of crisis (Hermann *et al.*, 2001). Leadership in public sector organisations is influential in developing a continuous and systematic diagnosis of vulnerabilities to capture signals and to effectively respond to them (Stewart and O’Donnell, 2007).

As the above literature analysis shows, the role of MCSs in resilient organisations has not been investigated in-depth, and further refinement of the concept of resilience as a public sector

management tool is necessary (Sciulli *et al.*, 2015). Indeed, MCSs – defined as back-end management processes that include all devices or systems managers use to ensure individual behaviours or decisions are consistent with organisational objectives and strategy (Merchant and Otley, 2006) – are considered as the driver of organisational change (Nuhu *et al.*, 2019). This is because MCSs could impact perceptions; they could change the culture and infuse dialogue within organisations (Hopwood, 1990). Furthermore, MCSs could help to reduce uncertainty and improve decision-making (Gul and Chia, 1994), particularly, in contexts of high environmental uncertainty (Gordon and Narayanan, 1984; Gray *et al.*, 1995; Simons, 1991). This can be achieved by encouraging interaction between various company areas and between participants who do not usually operate in the same context (Lai *et al.*, 2014). Public sector organisations are called to anticipate, prevent or effectively contain familiar risks, while rapidly adjusting and adapting in the face of emerging unfamiliar threats (Dalgaard-Nielsen, 2017). This uncertainty, along with other environmental variables, influences decisions on the design and use of MCSs (Burkert *et al.*, 2014; Chenhall, 2003; Widener, 2007), which in turn support management to cope with a crisis.

In Section 3, we will proceed by depicting the theoretical framework adopted to entangle the paper aim.

### 3. Resilient organisation: theoretical framework

Moving from the organisational concept of resilience, we rely on the framework developed by Barbera *et al.* (2017), and management control literature to untangle how constraining or facilitating MCSs contribute in fostering resilience capacities. The framework is based on four main dimensions. Two relate to the environmental conditions and the perceived vulnerability affecting a given organisation. The perceived vulnerability represents the way organisational members consider their exposure to external shocks, and it is the result of both internal and external conditions (Barbera *et al.*, 2017).

The other two dimensions of the model refer to the internal conditions defined as “capacities”: anticipatory and coping capacities. *Anticipatory capacities* relate to tools and capabilities that enable organisations to identify and manage vulnerabilities and recognise potential shocks before they arise (Barbera *et al.*, 2017, p. 675). *Coping capacities* become visible in times of disruption through coping actions. They refer to three capacities: the ability to absorb shocks without changes to structure or function, such as deferring investment, deferring expenditure or cutting costs (*buffering capacities*); the ability to implement incremental changes to extant structures and functions without changing underlying principles, culture and values, such as proactive activities to attract business, increase networking with external stakeholders, reducing organisational positions or enhancing performance management (*adapting capacities*); and the ability to implement radical changes, encompassing structures, functions, goals and values necessary for financial self-sufficiency (*transforming capacities*).

The ability to anticipate, absorb and react to shocks is the result of the interaction of environmental conditions and organisational dimensions over time. The perceived vulnerability that is a consequence of environmental conditions is central in understanding patterns of resilience.

Applying this conceptual framework to MCSs, we consider several elements such as cautious planning, monitoring, control processes, flexible budgeting and performance management and how these elements are implemented and used to manage the resilience capacities. These elements identified by Barbera *et al.* (2017) represent components of the MCSs (Malmi and Brown, 2008; Merchant and Otley, 2006). Planning is an ex-ante form of control (Flamholtz *et al.*, 1985). Companies involved in planning activities are more likely to execute their plan (Malmi and Brown, 2008). Monitoring helps to focus on performance

variables to implement and achieve the goal of the organisation by taking corrective measures (Merchant and Van der Stede, 2007). Performance measurement and evaluation increase effort and performance by focusing individual efforts on the task (Bonner and Sprinkle, 2002) and by guiding individual behaviour (Simons, 1994). Therefore, MCSs could also have an important role in the process of resilience by helping a company to achieve its goal, by increasing effort and performance and by guiding behaviour toward the goal of the company; in this sense, MCSs can drive organisational change (Nuhu *et al.*, 2019). Accordingly, in time of crisis MCSs could help in overcoming uncertainties (Gray *et al.*, 1995; Simons, 1991) by providing information useful for decision-making, planning, measurement and evaluation (Merchant and Otley, 2006; Mouritsen and Kreiner, 2016) and by contributing to individual and organisational governance (Carnegie and Napier, 1996).

The study by Barbera *et al.* (2017) argued that depending on the capacities an organisation rely on, it may maintain a status quo or rather change and progress. More recently, Barbera *et al.* (2020) applied the framework showing how accounting can support and affect organisational adaptation to external shocks. They conclude that accounting can be dually used by organisations. From the one side, accounting can support “self-regulation, adaptation and change” in the attempt to secure a strategic perspective. On the other side, accounting can foster short-termism or passive behaviour.

Similarly, the MCSs literature has highlighted the tensions “between freedom and constraint; between empowerment and accountability; between top-down direction and bottom-up creativity; between experimentation and efficiency” (Simons, 1994, p. 4). This dual role of controls has been described as “positive” and “negative” controls or “decision-facilitating” and “decision-influencing” (Speklé and Verbeeten, 2014). In line with this perspective, we refer to the distinction between constraining and facilitating MCS elements (Van der Kolk *et al.*, 2015). Constraining MCSs aim to monitor an agent’s activities and incentivise the agent to operate in line with the organisation’s desires. Examples of constraining MCS elements are internal auditing, performance monitoring and assessment. Facilitating MCSs, instead, are based on a stewardship concept where employees are empowered to contribute to the strategic and operational decision-making process. Examples of facilitating MCS elements are participative planning, cultural values and training. Van der Kolk *et al.* (2015) argued that, in the context of local authorities, overemphasising the constraining MCS elements might undermine the long-term ability of an organisation to overcome periods of financial crises. Balanced use of both constraining and facilitating MCSs is suggested as a more appropriate management response. This can be achieved by providing information used in decision-making, planning and evaluation (Merchant and Otley, 2006; Mouritsen and Kreiner, 2016) and contributing to individual and organisational governance (Carnegie and Napier, 1996).

By building on this conceptualisation, we aim at providing a more in-depth exploration of how MCSs are implicated in fostering or hampering financial resilience of organisations.

#### 4. Research methodology

We adopted a qualitative approach with a longitudinal case study, responding to the call for more qualitative analyses in managerial studies (Vaivio, 2008). We selected a publicly owned company that granted us full access. The period of analysis was from January 2015 to April 2018. We used a mix of primary and secondary sources in terms of direct observation, semi-structured interviews and internal documents analysis. The interviews aimed to understand the determinants of resilience in relation to the MCSs and how the company reacted to a crisis. We used open-ended questions which can yield useful information, especially when researchers need to explore complex issues that do not have

predetermined set of responses as the role of MCSs in resilience process (Carey *et al.*, 1996). Questions focused on the changes that have taken place over the past few years and the use of MCSs. They concerned, for example, MCSs tools used and introduced during the past years, how these tools responded to the emerging needs of control, the perception of the various operators with respect to MCSs and the changes that occurred over the years and how the company has acted (see the Appendix for more detail). We interviewed 16 managers and employees involved in the process under study (see Table 1 for details). Some managers were interviewed more than once; thus, the total number of interviews is 18. All interviews were taped and transcribed. The transcripts were sent to the interviewees to validate and confirm the content adhered to their thoughts and perceptions. Individual answers varied in length, complexity and content. Thus, we analysed and codified the interviews, highlighting the keywords that related to resilience and the way the company reacted to a financial crisis. One of the critical elements in qualitative data analysis is the systematic coding of interviews (Miles *et al.*, 2014) as it attributes interpreted meaning to each datum that contains references to specific categories of information (Saldaña, 2013). For our study, we developed and assigned a list of codes (as seen in Figure 1) that corresponded to the role of MCSs to make a company resilient according to Saldaña (2013). Given the research question and the explorative approach adopted, code list was an inductive task based on what respondents said (Carey *et al.*, 1996).

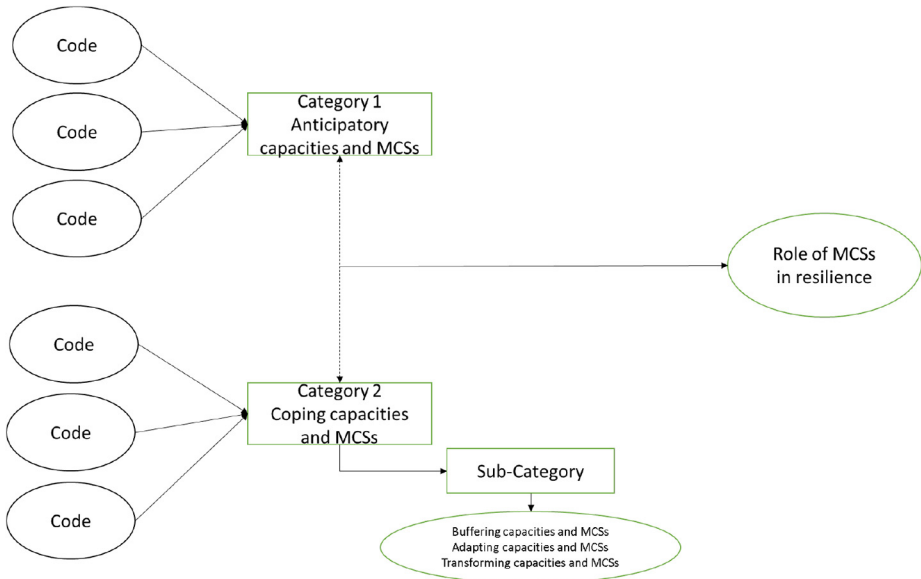
The interviews were analysed separately by the authors to reduce subjectivity, and results were compared and discussed to reach a common understanding of the meaning of the interviewees' responses. We also took detailed notes of several informal interviews. These informal interviews allowed us to go back to the original interviews to specify, clarify and ask for additional evidence. We also collected data through direct observation and participation in meetings. We first entered the site in 2014 and started the research in 2015, which allowed us to follow changes over time. We attended various board and management meetings. Furthermore, we had access to all internal and external documentation (minutes, budgets, guidelines, procedures, public documents concerning the sector's data and the financial situation of the owner).

### 5. Case study analysis: setting the context of external financial shock and perceived vulnerability

The subject of the case study is a state-owned enterprise (henceforth SOE) that deals with ordinary and extraordinary maintenance of regional government railway infrastructure. The SOE is wholly owned by the regional government, employing some 250 people and has a

Interviewees' role	Duration (in hour)	No. of interviews	No. of interviewees
Managing director	3.0 h	2	1
CFO	3.0 h	2	1
Management control manager	1.5 h	1	1
Human resources manager	1.2 h	1	1
Manager of strategical investment	5.8 h	4	4
Maintenance manager	3.0 h	2	2
Maintenance workers	5.5 h	4	4
Quality manager	1.5 h	1	1
Purchasing manager	1.5 h	1	1
Total	26.0 h	18	16

**Table 1.**  
Interviewees by  
position/duration



**Figure 1.**  
Coding process

budget of around €19m (in 2018). Its primary source of income is an annual transfer made by the regional government for infrastructure maintenance. Over the past few years, the regional government’s financial transfers have fallen by around 35% or some €5.5m. The cuts were incremental, as highlighted in Table 2, but the financial performance remained in line with the historical trend and the number of employees. The cuts were because of austerity policies implemented by the regional government, as underlined by one of the company’s managers:

The region wants to save costs and money [...] [T]he region has budget problems; this is the main purpose for cuts, the region cut resources in many sectors, not only the railway sector.

The reduction of public transfers was made with the explicit mandate not to compromise the level of activity, which pushed management to find ways to cope with the new financial environment while doing business as usual. However, as emerges from the interviews and the analysis of documents, the cut of public transfers increased the perception of financial vulnerability and uncertainty as the company risks to not be able to meet financial needs. For this reason, various employees interviewed were sceptical not only about the financial situation but also about the future of the company.

	2015	2016	2017	2018
<b>Table 2.</b>				
SOE trend in public transfers and economic performance				
Annual public transfer	€15,232,404	€14,776,601	€13,804,155	€9,921,000
In-house construction revenues			€1,345,338	€4,563,666
% variation of annual public transfers Y/Y		-2.99%	-6.58%	-28.13%
Cumulative variation of annual public transfers			-9.37%	-34.87%
Net income	€238,041	€114,379	€264,851	€52,000
No. of employees	235	235	240	250

### 5.1 Resilience capacities in the state-owned enterprise

In the face of these budget cuts, the management began refocusing the company's mission from infrastructure maintenance to providing services with a market-based logic. In 2017 and 2018, the SOE generated a new revenue stream by building an in-house capacity to construct its infrastructure. To cope with disruptive times, the SOE adapted activities to attract new business opportunities. That is, instead of outsourcing construction for maintaining and upgrading infrastructure, the SOE started to perform an increasing portion of these works in-house in spite of the uncertainties. In 2018, the new revenue stream represented up to 35% of the turnover, which allowed the SOE to sustain its financial performance and increase its human resources to cope with greater production activities.

This decision was taken as the only way to react to pursue the long-term financial sustainability of the SOE. In various meetings in which we took part, all participants were sceptical about the future, the director says:

It is a challenge that we must face. Our survival depends on what we can do; certainly, we do not have the tools to evaluate what will happen in the future, but it is better to prove that [we can act] than wait for failure.

As affirmed by the director, in spite of future uncertainties, it was decided to move on and take the risk. Opening a new revenue stream represented an opportunity taken to address the financial risks associated with the reduction of funding. This form of risk assessment and management manifested an anticipatory capacity, supporting organisational resilience.

In addition, the SOE established various collaborations with key stakeholders to attract tangible and intangible resources to pursue its strategic objective. Formal and informal relations were developed with the national railway infrastructure company and with the suppliers of parts and services. This allowed accessing the expertise necessary for carrying out the new activity.

The process of transformation and the introduction of a new area of business to cope with crises by adopting the adaptive approach of resilience was perceived positively. This orientation to change and the positive perception of change was also noted by the human resources manager, who affirmed:

The desire for learning from the staff seems positive. I think it's a good thing. It also allows us to bring together people from different business realities in order to homogenise. This was done in particular for maintenance personnel of electrical installations and station managers who had different operating modes and sometimes did not understand each other.

This attitude helped the organisation to perceive experiences constructively, reduce the impact of financial risk and transform itself from an infrastructure maintenance company to a service provider that used a more market-based logic. The predisposition to change could be considered as resilience capacity that helped the SOE to cope with the reduction of funds. This transformation required a change in organisational structure, function and overall culture. This emerged during both the interviews and the meetings.

I have seen the company change [...] [its] mentality and approach [...] [I]n recent years, the company developed a series of attentions on strategic behaviour [...] [W]e no longer have the certainty of achieving the objectives, once resources were certain [...] [but] not now (Human resources manager).

From this moment activities, aren't carried out in relation to the experience of those who managed, but they are linked to an objective that was translated into activities [...] [T]his is positive for me [...] [T]he change in mentality [is] in parallel with market changes (Investments manager).



The outcome of the resilience process was also possible thanks to the acquisition of the know-how of other companies in the sector (through agreements) and then increasing networking with external stakeholders. The involvement of external stakeholders allowed the SOE to attract and guarantee external resources in terms of advice, information, emotional support and practical help. In this process of change, external partner had an important role. In particular, partners allowed the company to gain the necessary skills to change its focus from maintenance activities to the renovation of the railway network. The increasing networking with external partners, considered as the adaptive capacity of resilience, allowed to acquire the necessary skills for the new challenge. The management control manager reported:

The role of partners is fundamental [...] it is clear in the face of new challenges we must always be accompanied [...] the partner is the one who does not make you wrong.

External partners provided SOE with the prospect of a reassuring sense of control over the organisation (Sturdy, 1997). Overall, the case study represented a paradigmatic example of public sector organisations' ability to cope with external financial shocks. In the following sections, we will analyse the role of MCSs in the development of resilience capacities.

### 5.2 Management control systems change in the state-owned enterprise

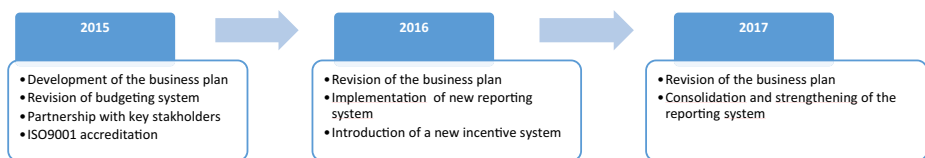
In the years under analysis, the SOE implemented a set of MCSs elements as depicted in Figure 2. These changes in MCSs were a response to the control needs associated with a reduction in public transfer, as well as the strategic reorientation described in Section 5.1.

In 2015, the top management implemented a business plan, where the new strategy was set as well as its development for the following three years. The business plan contained the action plan to start the conversion of the organisation from bidding and monitoring railway infrastructure works, to in-house construction. This new strategy was connected to the achievement of high operational standards. Consequently, the SOE obtained the ISO:9001 quality certification, requiring a complete revision of the production operations. Also, the budgeting system was revised, moving from an incremental logic to a more management-by-object logic, linking operational objectives to the business plan, strategic objectives and the allocation of resources. Although the incremental logic remained, given the rigidity of the cost structure, the available resources were allocated to formal operational objectives and specific performance indicators. In 2016, the company implemented a new reporting system in an attempt to align it to the new strategic objectives and performance indicators. Similarly, the performance appraisal and incentive system was revised. In 2017, most of the MCSs innovated tools were further developed and consolidated to be adapted to the changing external environment and the lessons learned during the first years of implementation.

### 5.3 Management control systems and resilience capacities

The business plan represented the starting point in the new strategy setting of the company. Long-term economic and financial sustainability were the goals of the business plan, which

**Figure 2.**  
Management and organisational changes introduced in SOE 2015–2017



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reviewed the strategic positioning and objectives. The business plan allowed the SOE to implement a long-term vision, representing a more managerial approach, as the management control manager made plain:

It made us understand that the company was completely acting not only as a classical public-owned company but with a managerial approach; the business plan helped the company to rationalise expenses and cut all unnecessary costs.

The business plan also had an external function, as it was presented and discussed with the shareholders. The analysis of the documents reveals the role of the business plan in the legitimisation of the whole change process. In fact, in various regional government acts, there are references to the SOE's business plan as a document, which justified the budget cuts while showing the corporate financial sustainability and maintenance of the quality standards.

The adoption and implementation of the business plan helped to manage the financial uncertainty and increased environmental awareness. One of the managers of strategic investment, referring to the business plan, reported:

[T]he important thing, in my opinion, is that the change implemented looks at the long-term period with greater contextual awareness and greater responsibility for results.

He added:

In the last few years, I see that efforts are put in place to have a larger and more long-term view. There is a broader and longer-term vision which has allowed us to manage and to anticipate the problems encountered, including financial ones, with awareness.

The use of long-term vision, as emerged in the interviews, helped the company to manage to reduce uncertainty and to increase its environmental awareness allowing to develop an anticipatory capacity. Employees tend to see uncertainty as threatening; however, the use of planning and long-term vision help to reduce this uncertainty (Christensen, 1985).

While the business plan allowed for a long-term perspective, the foreseen reduction of financial transfer, with the related uncertainties over the alternative revenue stream, led in the short-term to the activation of tighter control over spending and use of resources. Cost control and frequent monitoring became the norm, particularly in 2015. MCSs appeared to function in their diagnostic form to support constant monitoring and variance analysis with respect to the budgeted results. This form of constraining control was mostly limited to the overhead costs and traditional areas of activity. The optimisation of costs allowed the development of the buffering capacities of resilience in 2015 while waiting for the implementation of the new revenue stream.

In 2015, the SOE also changed the budgeting approach with a new responsibility centre related to the new business area. The role and function of the budget changed significantly. The budget moved from of a traditional public sector incremental approach, where budgets are based on historical data with a high degree of formalisation and tight financial control, to a more flexible approach where the budget sets objectives and allocates the resources. Simultaneously, managers are empowered to manage the resources flexibly to attain the performance. The flexibility in managing the budget was also associated with the need to grant managers the ability to gain experience in the development of the new revenue stream. As reported, the director made explicit that:

[. . .] the company does not have the full knowledge of how to achieve the objectives for the new business, it is a learning process, and we need flexibility in the way we plan and control.

The budget objectives were monitored and updated on the basis of employee performance and the trend in the costs of materials and services. The monitoring of the results contributed to assess the degree of achievement of the objectives and staff performance. However, monitoring was designed and used to grant autonomy to the managers and their collaborators, but at the same time provide feedback and feedforward information to support their tasks and activate learning. The management control manager reported, “. . . at least now we know what our staff can do.” This helped to monitor and reduce uncertainty. The perceived financial vulnerability occurred with the cutting of funds because the first results were positive, and the performance of the staff was good. The control of uncertainty helped to build resilience capacity (Berkes, 2007) and increase environmental awareness considered as anticipatory capacity of resilience (Barbera *et al.*, 2017).

Overall, from 2015 to 2018, we observed increasing attention to the control activity, in particular to long-term and short-term planning considered as anticipatory capacities, according to Barbera *et al.* (2017). Planning appeared to be diffused in everyone’s mind, as the management control manager underlined:

We are trying to plan everything that needs to be done in the future. Before, however, we lived for the day.

One manager of strategic investment added:

Planning became necessary because it helps to clarify what we will do tomorrow [...] [O]nce everything is planned, we know how many resources are needed [...] this has led us to develop a series of attentions with respect to the consequences of choice [...] in this way, conscious decisions are made.

The budgeting process also involved the definition of operational objectives. From an operational point of view, all core operational processes are defined in terms of operational activities/objectives to be achieved (Table 3). This was possible thanks to the development of operations control, which represented another anticipatory capacity to mitigate the effect of financial vulnerability. In the specific case, the operations control was implemented following the ISO:9001 quality certification. Consequently, all vital operational processes were mapped, quality performance indicators and quality procedures set. The management control manager affirmed:

With the quality certification, we formalised all processes and macro flows [...] [A]ll processes were rationalized [...] [T]his has also allowed us to identify margins for budget improvement following the cut in resources.

Place	Macro activity	Micro activity
Workshop works	Electrical cabinets	Carpentry cabinets Spinning wardrobes Structure laying Cabinet assembly in that structure
Work on construction sites	Component assembly	Laying manoeuvre boxes Laying terminals Uncover cubicles Cable laying Cover cubicles Electrical connections

**Table 3.**  
Example of activities  
planning

He added:

We introduced a managerial philosophy in managing investment [...] [I]t was absolutely the right choice. Now all the colleagues know the path and the process to follow [...] [T]hey understand the logical flow of information and the execution process that must follow.

The standardisation and formalisation of quality and operational standards gave the company greater knowledge of how the work is carried out and also made it possible to implement resource rationalisation policies. Furthermore, the control process improved monitoring activities by helping to identify the various activities and to assign performance objectives for each activity. Standard time was defined for each activity and updated with the historical data collected later. Based on standard times and available human resources, the company was able to plan, monitor the operational performance and therefore, the verification of the budget objectives.

Moreover, the company implemented a quarterly monitoring system that helped to keep the achievement of the objectives under control, while updating the budget to verify corporate sustainability both in the short and long terms. Since 2015, following the change in business model light has been shed on the control of activities related to the new revenue stream. Initially, the SOE monitors the operations in terms of standards and budget deviations, then the economic repercussions of operational objectives on the budget objectives are estimated. Two types of reports were elaborated: activity/material report with deviations from standards and operational objectives, and an economic report with the trend of revenues and costs for the new business line. The quarterly reports were presented and discussed with various managers to update and verify the achievement of objectives. Any deviations were discussed to update the results or standards and consequently, the flexible budget and business plan.

In this sense, MCSs allowed to control and monitor results, helping the company to redefine and improve its objectives and to review both the budget and the business plan. Flexibility is another characteristic of resilience. The revision of the business plan and the budget are an example of the flexibility that supports managers to be more aware of changes and to manage risk and uncertainty. In this sense, MCSs acted as a driver of resilience by activating a learning process. The reports were the source of information used by the SOE for decision-making. The management control manager stated that:

The reporting helped us to know our potential, we have started to understand what our staff are able to do, and therefore for the next few years, the budgeting process and the management objectives will be easy to define.

The information provided by the MCSs allowed the company to know the real productive level of various operators and the causes of any deviation; this helped to improve performance and activate the learning process. After a first phase, for example, some activities were outsourced – as the internal staff did not have the capacity and tools to compete with other companies – for other activities the operators were supported by new instruments and types of machinery. Moreover, some activity standard times were revised, considering the historical and effective level of production. The control systems in place stimulated the communication and discussion among managers and employees, fostering an improved definition and refinement of the objectives. Meetings were held to establish operational objectives and production standards, and collaboration between employees in different parts of the organisation played a decisive role. Employees' involvement and empowerment in the decision-making phase allowed the company to make them aware of the economic circumstances. One of the maintenance staff reported:

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In my opinion, the new mode of identifying objectives brought much more order. Before, for my level, there was no visibility of costs and objectives [...] [N]egotiation and definition was done only among executives [...] [W]e never perceived the company objectives.

Furthermore, MCSs facilitated a sense of organisational interdependency, fostered dialogue, mutual understanding and trust in this process of resilience (van der Kolk *et al.*, 2015; Simons, 1990). Involving people in the decision-making process allowed the SOE to motivate its staff to the issues. In this sense, facilitating MCSs contributed to involving and motivating staff as well as adapting the structures and functions of the organisation to the new context. Moreover, the increased internal and external interaction acted as a driver of organisational learning. The control manager reported, “meetings and dialogues are useful for understanding what we are able to do”.

Furthermore, the organisational chart was also revised by empowering younger managers within a flatter organisational structure. The SOE invested consistently in training existing and newly employed employees to diffuse the adequate skills and attitude. Training facilitated subordinates to better fulfil their tasks (Merchant and Van der Stede, 2007), while empowering of younger managers allowed the SOE to overcome cultural resistance, in particular among older staff. As the manager of strategic investment put it:

The most important change was the organisational reorganisation resulting from the new business plan. Perhaps that's what brought the biggest changes and even the biggest benefits. Because a major effort has been made on reviewing the processes and trying to import a management process for the company (...). I saw for the first time a formally managerial approach, whereas before there were more procedures than processes, dictated by regulatory obligations or customs.

In 2016, a new performance-based incentive scheme was introduced. The incentives given by the company are divided into two types, economic and other incentives. In addition, non-monetary bonuses were also given in terms of training which allowed a path of growth within the company. The new incentive is configured as an *improvement in the performance* system that is considered coherent with the other MCSs implemented. The introduction of the new incentive system allowed the SOE to drive behaviours in the desired direction. One maintenance staff member noted that:

I am evaluated with respect to what I do, every day I have to compile a report on the daily activity, I have to put the hours worked for each type of activity; because I can be identified as responsible for negative results, I am led to improve myself.

Another manager of strategic investment, talking about incentives, added:

It certainly influences the behaviour of people because it has been linked to productivity. So, if we get worse on a certain standard, we touch the wallet, which is very sensitive for us [...]. First qualifications and incentives were dependent on age, but now they have changed. There is an organisational structure which on the one hand has created apprehension, but on the other, it has rebalanced things. So, people who previously were considered too young for certain roles now have more possibilities.

## 6. Discussion

The case depicts a longitudinal portrait of how coping and anticipatory capacities developed to sustain financial resilience. In the process, MCSs played a role in developing resilience capacities. In particular, we detected business planning, budgeting, monitoring, operations control and environmental awareness, considered as anticipatory capacities (Barbera *et al.*, 2017). In addition, coping capacities significantly reduced the impact of budget cuts, both in

the forms of buffering and adaptive capacities. In our case study, the company converted part of its activity to attracting new businesses opportunities. The interaction with key stakeholders allowed the company to share objectives and acquire the know-how it needed to develop this new activity. The role of external partner was decisive, as they helped to formulate advice and provide information, emotional support and practical help and therefore to reduce uncertainties. Partners provided SOE with the prospect of a reassuring sense of control over the organisation (Sturdy, 1997).

To reduce the financial vulnerability, the SOE tightened the control on cost and efficiency. While in 2016, the SOE coped with funding cuts through a buffering strategy, in 2017 and 2018, the effective implementation of the new revenue stream allowed to maintain the overall financial performance. In this process, as highlighted, the predisposition to change played an essential role in the management of the financial shock.

Our results show how MCSs contributed to reducing uncertainties, legitimising and rationalising decision-making and activating a learning process. Learning in the resilience sense refers to social and institutional learning, as in learning by doing, also known as adaptive management (Berkes, 2007; Lee, 2012). In organisations, dialogue is key to stimulate learning (Berkes, 2007). The use of an appropriate MCS could facilitate organisational learning driven by organisational changes (Kloot, 1997) because under uncertain conditions an on-going learning results in high performance (Chapman, 1998). In fact, the MCSs fostered relational activities through which participants learned and developed an understanding of their context in relation to other actors and contexts (Bryer, 2011). MCSs also created the conditions within which judgements and decisions were made (Merchant and Otley, 2006; Mouritsen and Kreiner, 2016). In the case, as an example, a business plan was used to empower managers and employees and by giving them the autonomy and resources, without stringent performance target but long-term goals. The extensive adoption of trainings, particularly for younger employees, facilitated a shared common vision of the future of the company.

The use of facilitating MCSs enabled the company to focus its attention on strategic uncertainties (Simons, 1991). Accordingly, MCSs pressured the organisation at all level, motivate dialogue and debate and motivate employees (Bisbe and Otley, 2004). The monitoring of the budget were occasions to discuss problems and possible solutions, rather than identifying the responsible one. In this sense, the MCSs contributed to the steering of individuals through engagement and empowerment (Carnegie and Napier, 1996) and helped employees perceive experiences positively and perform positive adaptive behaviour – which thus made the company more resilient. These management control practices offered a way to make the changes real and construct seemingly objective and neutral records for abstract and complex issues (Hopwood, 1990). They also helped to encourage interaction between various company areas and between participants who do not usually operate in the same context (Lai *et al.*, 2014). This is because MCSs can influence perceptions, change language and infuse dialogue (Hopwood, 1990). Our results support the view that facilitating MCSs help reduce uncertainty and improve decision-making (Gul and Chia, 1994), particularly in contexts of high environmental uncertainty (Gordon and Narayanan, 1984). While MCSs contributed to shaping anticipatory and coping capacities, the financial shocks provided opportunities for investing in new MCSs, cyclically strengthening or developing new anticipatory and coping capacities.

Table 4 summarises the role of MCSs and the resilience capacities involved that were leveraged to maintain self-sufficiency. The SOE successfully sailed through stormy waters in an attempt to effectively manage harsh external financial conditions (Barbera *et al.*, 2017).

The change from an infrastructure maintenance company to a construction company with a more market-based logic strengthened the SOE's desire to self-regulate. This resulted, as an example, in a change of budget role. Budget in the public sector may play three different functions: allocative, a managerial and an external accountability function. Allocative function regards spending limits and cost control; managerial function is linked to objectives assignment and control; accountability function held the organisation accountable towards its stakeholders (Schick, 1990). Our results highlighted how the budget function shifts from an allocative to a managerial function in post-crisis and austerity contexts (Anessi-Pessina *et al.*, 2016; Sicilia and Steccolini, 2017). In our case study, this has occurred as an adaptation to environmental change, reinforcing the inter-organisational focus that contributes to change the function of the budget.

The results show how a more facilitating use of MCSs helped the company develop a common language around data and performance. This was important, as technical staff and administrators use different language and tended to interpret data in different ways according to their discipline or role. Interactive use of MCSs tears down hierarchical and functional obstacles that inhibit information flow (Abernethy and Brownell, 1999) and enable managers to engage in their subordinates decision activities (Simons, 2000).

Overall, the use of facilitating MCSs support SOE during crises, as they represent a way to cope with the increased demand for information during a crisis (Janke *et al.*, 2014; van der Kolk *et al.*, 2015). Additionally, they enhance organisational capabilities like organisational learning to cope with possible opportunities and risks (Henri, 2006; Simons, 1994; Tessier and Otley, 2012). Overall, we noted that the use of facilitating MCSs acted as a driver for change in time of crisis; resilience characteristics could support the process of change.

### 7. Conclusion and final remarks

In this paper, we drew on the concept of organisational resilience and facilitating/constraining control to explore how MCSs contributed to SOE's response to harsh financial conditions. In particular, starting from the characteristics of resilience identified by Barbera *et al.* (2017) and the MCSs literature (van der Kolk *et al.*, 2015), we looked at how MCSs contribute to organisational resilience in our case study. The strategy adopted by the SOE was supported by various elements, which we identified as anticipatory and coping capacities. We argue that greater attention should be given to the role of the MCSs in managing financial shocks. Business planning, budgeting, reporting system, incentive systems, but also training and internal communication and collaboration all contributed to the development of adapting and coping capacities. In doing this, facilitating MCSs allowed the organisation to improve its resilience capacities during a period of financial austerity (Wilson *et al.*, 2010; Simons, 1990).

Our study is a response to calls for longitudinal research in management accounting studies (Merchant and Van der Stede, 2007) and more in-depth analysis on how control practices affect resilience capacity during financial shocks (Van der Stede, 2011; Bracci *et al.*, 2015;

**Table 4.**  
Summary of SOE  
resilience principles  
and that of MCSs

MCSs contribution to develop organisational resilient capacity	
Anticipatory capacity	Coping capacity
Continuous planning	Training
Monitoring	Increasing networking with external stakeholders
Operations control	Internal communication and collaboration
Flexible budget	Cost control
Environmental awareness	

van der Kolk, 2015). The main contribution of this work is that it singles out the role of MCSs in resilience and organisational change. This paper opens the lid and shows how resilience capacities are generated and strengthened via MCSs. During financial shocks, organisations face high levels of uncertainties, both in terms of objectives to be pursued and the means by which to achieve them. As the case study shows, facilitating MCSs in these contexts can support organisational resilience by providing the legitimisation of choices, thanks to the rational representation of uncertain objects. In line with a previous study (van der Kolk *et al.*, 2015), the findings show that facilitating MCSs can foster long-term financial sustainability, encouraging stewardship behaviour, rather than short-termism. Furthermore, facilitating MCSs support adaptive behaviour by providing knowledge and ready-to-use answers. During financial shocks, the role of MCSs needs to be understood in a dynamic perspective. This conclusion supports the view of Mouritsen and Kreiner (2016) that MCSs assist decision-making not by solidifying decisions, but with a continuous process of decision “from causality to effectuation and from solutions to generation of alternatives” (p. 21). As such, resilient organisations use MCSs in multifaceted roles, and not to search for a new equilibrium, but rather to continuously adapt to the uncertain internal and external environment. Another contribution of this paper is the operationalisation of the model of Barbera *et al.* (2017) by defining how the various elements, in particular those relating to the MCSs, contributed to organisational resilience in the face of a financial shock. Our analysis allowed the identification of how MCSs provided SOE with the capacity to cope with the budget cuts. While we concur that in periods of high uncertainty MCSs can contribute to the absorption of uncertainty and anticipation of shocks (Barbera *et al.*, 2020), we further demonstrate that this may be functional to a facilitating approach.

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### Further reading

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### Appendix

Example of open-ended questions used:

- (1) What is your role within the company?
- (2) How long have you been working in the company?
- (3) Can you describe the changes that have taken place in the company in recent years, in particular, organisational change?
- (4) What are the management control tools introduced in recent years?
  - Strategical tools
  - Budgeting
  - Reporting system
  - Monitoring system
  - Incentive system
- (5) How have the new managerial tools influenced the way of working?
  - Operational activities
  - Organisational
- (6) How the main difficulties of financial cuts have been overcome?
- (7) How do you assess the current way of working than a few years ago?
- (8) What was the role/function of external consultants and the managerial innovations they introduced?
- (9) What other external actors have influenced, accelerated, slowed down the processes of organisational change and in managerial practices?
- (10) How has regional government influenced the process of innovation and change, and/or how does it affect strategic decisions?

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