The paradox of a functional Management Control System

Purpose – This qualitative research paper aims to illuminate the paradox of a functional MCS.

Design/methodology/approach – Academically known requirements, deliberate and unintentional, of a functional MCS, MCS theory is explored.

Findings – The paradoxical requirements can be considered theoretical findings providing new research avenues to evaluate an MCS to be considered functional.

Research limitations/implications - Further research for a broader set of empirical cases may increase the validity of the paradoxical requirements to evaluate an MCS being functional for supporting strategy execution.

Practical implication – How MCS can be considered as a functional strategy execution instrument that is usefull for practitioners and researchers.

Originality/value – The design and use of MCS have been researched and debated. However, whether the MCS is functional for strategy execution has received limited attention as MCS research has focused on isolated MCS components debating multiple perspectives with contradicting results, ignoring the experience of practitioners.

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Keywords – Management Control Systems, Strategy Execution, practitioner control system execution

Abstract

The design and use of MCS have been extensively researched and debated. However, whether the MCS is functional for strategy execution has received limited attention as MCS research has focused on isolated MCS components debating multiple perspectives with contradicting results, ignoring the experience of practitioners.

This qualitative research paper aims to illuminate the paradox of a functional MCS, provides the opportunity to develop a more complete MCS theory and help organizations to evaluate their MCS. We explored the MCS literature and use conceptual maps to rationalize the MCS findings. We identified factors that MCS researchers evaluated as functioning MCS,

nevertheless we found that there are some non-included factors that make MCS being dysfunctional.

This paper is useful to bridge the gap between functional and dysfunctional MCS.

1. Introduction

This qualitative research paper aims to illuminate the paradox of a functional Management Control System (MCS) that provides the opportunity to develop a complete MCS theory, and helps organizations to evaluate their MCS. This research provides multiple paradoxes allowing for multiple research avenues meanwhile providing handhelds for practitioners. The research builds on academically known knowledge answering the call for *"studies by academics who are better connected with the world of practice"* in order for MCS research work that leads to better, more reliable theories of MCS that are also useful to practitioners (Merchant & Otley, 2020). Hence, in parallel to this conceptual contribution to MCS research, this paper also attempts to bridge the rigor of research while contributing to managerial practice for managing strategy execution.

MCS are designed to help managers execute strategies within their organizations (Coller et al., 2018; Frigotto et al., 2013; Zanibbi, 2011) and are considered vehicles for organizations to achieve their goals (Merchant & Van der Stede, 2007). We argue that if a MCS does not help managers to execute their strategies and are not vehicles to achive the organizations' goals, therefore, the MCS is disfuntional. Here is where we state that lies the functional paradox of a MCS.

In a static environment or in a specific moment in time the paradox could be determined with clear and concise research logic. Today's business dynamics force organizations to adapt to the latest conditions with constantly evolving opportunities and risks, business transformation, regulatory pressures, sustainability, green practices, and technological advancements (Adi & Sukmawati, 2020; Herath, 2007; Hristov et al., 2021b; Marx et al., 2012), that constantly influencing the control practices of the organizations. A firm's strategy execution is influenced by several factors and unforeseen elements that emerge in the strategy execution process causing strategic actions to diverge from the strategic start point (Brauer & Schmidt, 2006). Many intended strategies can be realized or not, while unintended strategies are realized (Mintzberg, 1977). Based on this view, the MCS supporting the strategy execution process should not be seen as a static architectural structure but as an evolving process where the components of the MCS continuously are morphing to be congruent with the current and prospective implementation of strategies to remain functional while functioning. Early MCS research confirms that strategy is under continual construction affecting the configuring of MCS with strategy as an ongoing development process (Gond et al., 2012; Kober et al., 2003; Langfield-smith, 1997).

Rooted in contingency theory, followed by agency theory, stewardship theory, or a resource-based view, MCS scholars (Adhi Nugroho & Hartanti, 2019; Crombie & Geekie, 2010; Hiebl, 2013; Østergren & Stensaker, 2011) recognize that the MCS should be following the strategy, but they are thought to be contingent to specific external situations (Malmi & Brown, 2008).

However, there is a contingency theory paradox concerning the research assumptions. The ontological research assumption is that reality is a layering of actual events with internal mechanisms and independent internal and external events that affect the real (Saunders et al.,

2019, p. 135). This real word assumption is applicable to determine whether an MCS is considered functional as business dynamics prescribe a layering of paradoxes that cannot be researched and captured in a static research approach. Though scholarly work states clear research logic, the ontological research assumption influences the pre-dominantly epistemological assumption in MCS research of retrieving knowledge from business practices that researchers might not know but want to get and eventually communicate.

The state of the art in MCS research has grown considerably, bringing about fragmented and partly contradictory results(Sageder & Feldbauer-Durstmüller, 2019), raising questions about what we know and do not know. MCS researchers might unintentionally criticize and debate each other findings when they design their research choosing one research assumption following the contingency theory. This assumption might be a research question as it contradicts a methodological approach to presenting research's empirical findings. However, it highlights the paradox of determining the right research approach and whether an MCS is functional for its purpose.

MCS was not originally developed to provide dynamic support within a firm over time, however the contingency theory suggests that, as the firm's internal resources and external characteristics evolve over time, it will differentially utilize control systems and the control mechanisms within (Martin, 2020) as the challenge for any MCS design is the bespoke organizational strategy. Furthermore, MCS changes slowly compared to other organizations (Hartmann et al., 2021, p. 438). However, there is a lack of knowledge of how MCS as a strategic vehicle can be continuously functional in supporting strategy execution and their relevance in assessing and monitoring the strategy (Adib & Zhang, 2019). Furthermore, strategies differ between organizations as they operate in their own unique environment, and controls should be tailored to the requirements of specific strategies (Adler, 2011; Otley & Soin, 2014). Finally, organizations face the challenge of dealing with multiple institutional rationales (Schäffer et al., 2015).

2. The context of functioning MCS versus functional MCS

2.1. Organizational context influencing MCS

By birth, MCS is an intra-organizational oriented tool. However, research must consider the external environment to cope with uncertainty (Adib & Zhang, 2019; Chenhall, 2003), which is crucial for developing and implementing the strategy (Coller et al., 2018; Kaplan & Norton, 2009; Mundy, 2010). The MCS literature shows that MCS theory and practice are struggling with the organizations' environment due to its increasing complexity (Herath, 2007; Merchant & Otley, 2020; Reimer et al., 2016a) as MCS literature has focused mainly on a limited number of MCS components and formalized, mainly, intra-organizational factors (T. Davila, 2000; T. Davila et al., 2011; Langfield-Smith, 2006; Otley, 1999). However, the theory of management control and its systems has an internal, intra-, organizational orientation following Anthony's definition of the process (Otley, 1995), by which managers influence other members of the organization to implement the organization's strategies.

The design and use of MCS in its intra-organizational context have been extensively researched (Awadh Bin-Nashwan et al., 2017; Chapman, 2005; Hristov et al., 2021b, 2021a; Kolk, 2019; Martyn et al., 2016; Oates, 2015; Sageder & Feldbauer-Durstmüller, 2019) and it offered different and competing management concepts, e.g., MCSs for financial management, strategic management, and value-based management (Marx et al., 2012). The line of research in MCS literature related to strategy has evolved to capture intangibles (Kaplan & Norton, 2009)

and included factors like Big Data (Daskalova & Ivanova, 2019) to produce greater alignment or congruence with organizational strategy. Furthermore, management accounting literature has focused on MCS' components, how MCS' operates, and its performance measurement. However, the evaluation of a functional MCS for the contingent situation and the specific organization's strategy did not get too much attention (Adib & Zhang, 2019; Merchant & Otley, 2020).

MCS operating in an inter-organizational context is conceptually different from coordinating activities between legally independent organizations with no apparent formal hierarchical authority (Hartmann et al., 2021, p. 225). MCS literature on inter-organizational context does not provide one definition and is often labelled as 'inter-organizational relationships', 'inter-firm settings', 'hybrid organizational forms', and 'networks' (Caglio & Ditillo, 2008). These include supplier partnerships, subcontracting and outsourcing arrangements, and strategic alliances. The supplier partnerships are confirmed by (Pernot & Roodhooft, 2014) in an automotive supplier relationship. The subcontracting and outsourcing arrangements and strategic alliances are confirmed by (Carlsson-Wall et al., 2011) in the case of domestic care of the elderly. The characteristics of inter-organization aspects contain a level of trust as if collaborating with friends and dealing with foes (Carlsson-Wall et al., 2011; De Ribeiro Campos et al., 2019; Laguir et al., 2019). The inter-organizational relationships, e.g. strategic alliances, create challenges for the design and uses of MCS because the roles of MCS in managing these types of relationships transcend organizational boundaries as companies increasingly rely on strategic and operational partners to access complementary resources and skills, protect their markets, win new market share, and share risks (Carlsson-Wall et al., 2011; Langfield-Smith, 2006; Meira et al., 2010) which fuel the necessity of inter-organizational control mechanisms.

MCS research has evolved beyond its intra-organizational boundaries as Organizations are part of a dynamic environment that they need to understand (Adib & Zhang, 2019). MCS research has evolved beyond organizational boundaries as organizations do not exist in a vacuum, they are part of a dynamic environment, and they need to know what is going on around them and how they are perceived by the stakeholders that make up that environment (Adib & Zhang, 2019). The extra-organizational context is the boundary of society (Albertini, 2019) where the organization operates, which includes e.g. the societal pressure to take responsibility for the risk of global warming and Corporate Social Responsibility which have to be included in the design and use of a funtional MCS (Hasanudin et al., 2019).

The continuously morphing context in which the MCS needs to remain relevant provides challenges for MCS to determine whether the MCS is functional for its purpose.

2.2. Functional and Functioning systems

MCS scholars have been debating each other's understanding of functional versus functioning MCS, challenging each other's understanding of the MCS design and use (Chowdhury & Shil, 2020; Kolk, 2019; Umans et al., 2020) and the effect of time. From the perspective of effectiveness, MCS has been researched (Adhi Nugroho & Hartanti, 2019; Agbejule & Jokipii, 2009; Cater & Pucko, 2010; Chong & Mahama, 2014) nearing the functional versus functioning perspective.

Following the analogy of MCS as a vehicle for executing strategy, the functional versus functioning debate is clarified using a real-world example of a vehicle (Merchant & Van der Stede, 2007). The driver of a vehicle steers an organized assembly of mechanical components. The driver trusts that individual components of the vehicle are doing the right things as they were

designed to do, being *functional*. When the driver uses the mechanics of the wheel, the vehicle is functionally steered towards the intended destination *functioning* according to the purpose of a mean of transport. The vehicle has an inter-relation with other vehicles negotiating available resources. The vehicle performs according to its design and technology aids by constantly and diagnostically evaluating most mechanical components' performance to ensure they are functioning according to their design. In regular intervals, there is an inter-relationship with a specialist who diagnostically reviews whether the output of individual mechanics performs within inter-active standards, which can evolve over time.

In the research field of designing IT-based information systems, a system is defined as a collection of interacting components (Zak, 2003), characterized by two properties:

1. The interrelations between the components that are contained within the system
2. The system boundaries that separate the components within the system from the components outside

Due to the evolving contingent context in which the vehicle needs to perform, it might evolve to not being functional while functioning, requiring additional (temporary) and complementary mechanisms or a complete overhaul to remain functional.

3. MCS's link with strategy execution

Anthony (1965) defined management control (MC) as "…the process by which managers influence other members of the organization to implement the organization's strategies.". Although Anthony (1965) identified MC as a process for the whole organization, which is doing the things right from a holistic perspective, he purposely neglected the process of strategic planning to make decisions to do the right things and operational control to do things right (Otley, 1995). Merchant and van der Stede (2007) broadened the MC perspective with objective setting and strategy formulation (Kolk, 2019). With the broadened perspectives, MC specifically addresses the goal congruence question where people pursue personal goals that conduce to the organizational goals (Escofet, N.C., Rosanas, J. M, 2012).

The management control perspective by Franssen (2015) connects above mentioned classic methods and techniques with modern forms of control of the behavior of people in the organization with contemporary themes, such as data analytics, strategic behavioral change, and IT transformation adding a temporal orientation of past, present, and future control. The time horizon perspective allows management to identify on getting the basics right or past control, optimization of processes or present control, and an outside-in / inside out or innovation perspective or future control.

3.1. Management Control Systems

Several MCS researchers can be considered an authority on MCS, but most are built on the seminal work of Anthony (1965). For example, Robert Anthony (1965) suggested a Management Control Systems framework at the Harvard Business School under 'Management Planning and Control Systems'. He defined MCS as "the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives" with a formal and an informal control system (Chtioui & Thiéry-Dubuisson, 2011; Hosoda, 2018; Merchant & Van der Stede, 2007).

The informal control system may be defined as a system that fosters an organizational climate conducive to behavior based on the organization's values and beliefs of managers and employees, and that is enhanced by social controls (Hosoda, 2018). The informal control system

does not control behavior through explicit, verifiable measures. Instead, an informal system comprises common values, beliefs, and traditions that direct group members' behavior (Hosoda, 2018; Ouchi, 1979; Wijethilake et al., 2018). This raises the question of whether the informal control system can be designed or considered a conceptual structure? On the one side, is the informal system fostering flexibility when strategies change or unintended strategies emerge? Or is the informal system fostering activities that routinely form with norms?

In practice, formal and informal control systems nourish the discussion about the complexity of guiding individual and group behavior to functionally steer activities that support organizational goals and strategies (Hartmann et al., 2021, p. 5). The comprehensive terms ‘in control’ or ‘out of control’ are increasingly used in the business press and are beyond whether the organization is on the right track towards reaching its mission, goals, and strategies (Hartmann et al., 2021, p. 14). The guiding MCS principle is the formal components that can be obtained and disposed of to orchestrate the tensions between the control mechanisms, while the informal components require a more subtle approach.

Anthony (1965) highlighted that if top management does not implement appropriate control practices supporting organizational objectives, lower-level managers and employees might not be clear on what results to achieve and how to use the resources at their disposal (Hartmann et al., 2021, p. 5). A functional MCS depends on the ability of top management to validate their assumptions and choice of measures and targets related to their strategy at lower levels of the organization (Arjaliès & Mundy, 2013). The operationalization of the overall control system must be broader than the measurement and the management of the performances of the measures and targets (Otley, 1999). Rather than viewed as a rigid mold that rejects the unexpected, MCS are flexible and dynamic frames adapting and evolving to the unpredictability of innovation, but stable to frame cognitive models, communication patterns, and actions (T. Davila et al., 2011). Temporal development of a firms’s strategy can be interpreted by middle managers that top management “zig-zag”over time – swaying and pulling to their strategic course independent of the timing of the implementation of existing strategies (Brauer & Schmidt, 2006), and middle managers play a fundamental role in the success of MCS-related changes as they need to make sense of and deal with differing views of changes in MCS and the impact on their roles, responsibilities and identity at work (Martin-Rios, 2016). There are many challenges for top management to create a functional MCS as they not only need to be exploitative, coercing control mechanisms mecanically but also they must be explorative, deploying control mechanism organically.

The intent is to highlight the ambidexterity - the ability to balance exploitative and explorative activities (Gschwantner & Hiebl, 2016) - for a functional MCS as top management need to be exploitative coercing controls mechanisms mechanically. Paradoxically, top management must also be explorative, deploying control mechanisms organically.

3.2. Strategy Execution

A significant body of literature has explored the relationships between MCS and strategy (Bisbe & Malagueño, 2012; A. Davila, 2012; Martyn et al., 2016) and the conceptualization of performance measuring strategy execution (Srivastava & Sushil, 2015).

Different scholars in Management Accounting, Strategic Management, and Organization science use different terminology for achieving organizational objectives, e.g., strategy

implementation (Awadh Bin-Nashwan et al., 2017; Maas, 2008; Roque et al., 2019), strategy execution (Pagani, 2013; Sheehan, 2010). Consequently, there is no scholarly difference between strategy implementation and execution labels.

Strategy formulation and execution are separate, different parts of the strategic management process, whereas strategy execution usually takes longer than strategy formulation (Hrebiniak, 2006). The longer time frame can make it harder for managers to focus on and control the execution process (Hrebiniak, 2006; Maas, 2008), underlining a time characteristic of whether an MCS can be functional. Furthermore, multiple scholarly frameworks for and definitions of strategy implementation add new variables to previous frameworks or re-group variables from new angles with limited possibilities to test them empirically (Li et al., 2008). Therefore, the definition for strategy execution used in this research is the one by de Oliveria et al.(2019), whose formulation is empirically constructed from multiple definitions of strategy execution literature while dealing with and being informed on the progress with planning and doing the strategy execution.

Strategy execution and implementation is the process, and related procedures, of (i) informing – and of being informed by – managers and employees about company challenges as well as of (ii) translating the strategic plan -either explicitly stated or else just assumed by top-level managers- into specific actions and (iii) establishing consistency among distributed company efforts and respective resource-allocation decisions, in search of coherent movement for alignment between organizational effort and strategic intention in pursuit of corporate objectives.

Strategy execution is a process and involves an informing process. Much of the MCS research linked to strategy execution has concentrated on cross-sectional analysis where organizations are assumed to have a static generic business strategy type, ignoring temporal development of the organizations and strategy execution inconsistency (Brauer & Schmidt, 2006) when a strategic change occurs (Kober et al., 2003). MCS researchers have frequently referred to the typologies of Miles and Snow (1978), supporting strong theoretical generalizability (Agbejule & Jokipii, 2009; Arjaliès & Mundy, 2013; Auzair, 2015; Bedford, 2015; Chapman, 2005; Gond et al., 2012; Pondeville et al., 2013).

However, in practice, the generic business strategy types may not be as pure as Miles and Snow describe (Tan et al., 2006). Large organizations, such as multinational corporations, typically consist of multi-layered organizational hierarchies where organizational typologies might respond differently as each organizational layer might experience its unique intra- and inter-organizational tensions. Organizations evolve, continuously balancing the ambidexterity scale of exploiting and exploring (Gschwantner & Hiebl, 2016) among their multi-layered organizational hierarchies.

3.3. The temporal perspective of MC and its systems with Strategy Execution

MCS research does not purposely consider whether the MCS is functional for its purpose over time. The scholarly conclusion is that multiple factors and MCS components have a temporal interrelationship with the corporate strategy (Merchant & Otley, 2020; Mundy, 2010; Otley & Soin, 2014; Zanin & Costantini, 2018), therefore questioning whether MCS is functional for its purpose.

MC and MCS perspectives are directly linked with strategy and the temporal information flow as guiding principles to influence behavior, allowing for a simplified categorization of the components and their dimensions. The first category is Directions and Decisions, as it supports

doing the right things to attain organizational objectives. The second category, Deeds & Data, is the information flow as it connects behavior with facts to present decisions by top management to do things right for managers.

Table 1 aims to recognize a conceptual view that emphasizes the temporal dynamics that support the implementation of the organization's strategy and does not pretend to show scholarly completeness nor proof of the conceptual depth of Management Control and its systems.

Dimensions			**The broadened perspectives**		
			Operational Control Merchant and van der Stede (2007)	**Implement strategies** Anthony (1965)	**Strategic planning** Merchant and van der Stede (2007)
Franssen (2015)	**Directions & Decisions**	**Stakeholders context**	Intra-organizational		Extra- and inter-organizational
		Who	First-line supervisors	Top management, line managers	Top management, staff specialists
		Evaluating activities	Doing things right	Managing doing things right	Deciding to do the right things
		Time horizon orientation	Past	Present	Future
	Deeds & Data	**Direction of information**	Exploitive		Explorative
		Performance orientation	Measuring	Managing	Planning
		Nature of information	Daily	Diagnostic	Tailor-made
		Information orientation	Hindsight and real-time data	Insight	Foresight

Table 1. Synthesis of Management Control dimensions. Source: adapted from Chowdury (2020)

4. The MCS ambidexterial information flows

Multiple authors (Coller et al., 2018; Frigotto et al., 2013; Kober et al., 2003; Maas, 2008) state that an MCS is functional when it supports a strategy process with evolving characteristics that provide the necessary information flow that deals with multiple institutional logics in a changing context, including temporal effects. This argument is in line with "Levers of Control framework" (Simons, 1994), who adopted the MCS definition of the formal, information-based routines and procedures that managers use to maintain or alter patterns in organizational activities.

However, MCS is not merely the information flow that includes planning, budgeting, and performance measurement that facilitates evaluation, feedback, and corrective action (Hosoda, 2018; Malmi & Brown, 2008; Marx et al., 2012). The formal information flow of the MCS must contain a relatively static consistent mechanical perspective focused on exploitation and, in parallel, should support an organic morphing perspective to encourage creativity and innovation focused on exploring opportunities and dealing with risks.

4.1. Horizontal ambidexterity to remain functional

MCS and strategy execution cannot be seen standing on their own as there is a continuous paradoxical tension between adapting to external threats and exploring opportunities while exploiting existing business models with innovations and structural alignments (Taródy,

2016). Therefore, a functional MCS must foster organizational ambidexterity for organizations to succeed in their strategy execution (Gschwantner & Hiebl, 2016). For an MCS to remain functional, it must be able to horizontally shift between exploitation and exploration, finding the correct position on the ambidexterity scale.

The literature review on MCS confirms the ambidexterity requirement for an MCS, where the influences of organizational dynamics are researched on the effectiveness and efficiency of the MCS (Adhi Nugroho & Hartanti, 2019; Agbejule & Jokipii, 2009; Cater & Pucko, 2010; Chong & Mahama, 2014) to achieve long-term prosperity exploitatively.

4.2. Vertical ambidexterity to remain functional

In the ambidexterity discussion of a functional MCS balancing between exploiting and exploring, it is relevant to distinguish between leadership and management. As MCS must be viewed from an integral perspective rather than isolated systems or components; rather they are interrelated and work as a package (Lee et al., 2014; Malmi & Brown, 2008), so must a functional MCS be seen as a multi-layered phenomenon including multiple organizational echelons (Andersen & Lueg, 2017).

Leadership is about deciding to do the right things, being proactive and future-oriented, promoting change, and creating a vision and strategy that support organizational success and legitimacy with a focus on the exploration side of the organization (Falkheimer et al., 2016; Umans et al., 2020). At the same time, management is about exploiting the organization, doing things right, focusing on current business, and establishing processes and routines to enhance effective action.

Management leaders easily dispose of or re-design a fit-to strategy formal control systems (Frigotto et al., 2013). However, company executives cannot conveniently adjust the informal system of behavior and mentality to a new fit-to-strategy. The formal MCS needs to interact via a multi-layered cultural phenomenon across various contexts, guiding individual decision-making and behavior (Andersen & Lueg, 2017). It is not functional to guide individual behavior but rather the behavior of lower-level managers to efficiently manage organizational resources to achieve organizational objectives (Hartmann et al., 2021, p. 75).

4.3. The concept of a functional MCS

The outcome of a functional MCS can be interpreted as that it should contain measures as a ‘system’ does. However, another paradox lies: the formal systems can produce measures that would be challenging for the informal system. Kumar (2011) proposes that through the formulation of a research problem, scholars can distinguish between the measurability of a variable versus a concept (Kumar, 2011, p. 104). In this research, a functional MCS, a concept, is a subjective impression with little uniformity as its understanding among multiple scholars is different and cannot be measured. On the other hand, a variable with a cause-and-effect relationship can be measured, even with subjectivity.

An MCS is a process consisting of multiple processes or systems. It should be clear that the MCS is not an automaton (Hartmann et al., 2021, p. 433). If this were the case, then the making of the internal control systems would not be a significant challenge that economists and management scholars are facing (Simons, 1994, p. 5). Multiple MCS scholars agree that informal aspects are a crucial component of the MCS which make the entire control system and that the informal system should be in harmony with the formal system so that the organization, its objectives, and its functioning go in the same direction (Chtioui & Thiéry-Dubuisson, 2011). An

organization consists of multiple organizational layers, and it would be naïve to state that the organization has one overall MCS. Merchant & Otley (2020) stated that the heart of the discussion is that no single control method is entirely effective in isolation and that formal and informal control can only be considered from the viewpoint of complementarity.

4.4. The producer of the information flow as a requirement

Multiple MCS studies researched drivers of MCS design and use (T. Davila, 2000; Frigotto et al., 2013; Hristov et al., 2021a, 2021b; Kaplan, Robert S; Norton, 1992; Martyn et al., 2016)(. The drivers from these researches can be considered factors like changing organizational typologies, external factors (e.g., environmental), and organizational strategies (e.g., product development) that acts as agents of change influencing the design and use of the MCS. Though each research is focused on one or a limited number of drivers, all these factors cannot be interpreted independently to determine a functional MCS. Therefore, they must be seen as continuously complementary characteristics of MCS as a functional vehicle to achieve organizational goals.

A question is raised about who is holistically responsible for a functional MCS, managing the paradoxes while producing and delivering the information flow. Earlier research by Agbejule (2009) confirms the informing need for managers to be aware of the drivers of the control system's effectiveness and the relationships essential to drive effectiveness, primarily when operating in different strategic fields. This motivates the centrality of the production of the information flow surrounding the business strategy navigating the organization from one business strategy to another. The information centrality fuels the importance of the controller’s role in producing and validating the truth providing evidence (Lambert & Pezet, 2011) while dealing with organization ambidexterity (Gschwantner & Hiebl, 2016), validating the information truth over time (Lambert & Pezet, 2011), and leveraging the MCS as an information navigation system, providing foresights, with a certain bandwidth of consistency at different points in time (Brauer & Schmidt, 2006). The centrality implies different propositions of the role of the controller (Hiebl, 2013) in managing stakeholders' information demand, leveraging the components of the MCS, dealing with the factors, and enabling management activities to support strategy execution.

Managing the paradoxical tensions emphasizes the duality role of who is responsible for the information flow. On the one side, the producer of information must produce a temporal consistent information flow serving the exploiting side of ambidexter scale, providing insights and accountability of performances in hindsight, and producing an agile information flow serving the exploring side of the same ambidexter scale. On the other hand, managing these tensions, the producer of the information flow needs to decide whether to tactfully and judiciously distribute the information or not (Puyou, 2018).

The ambidexterity implies multiple two-way channels of formal, directed procedures of communication and informal channels of social interaction, both hierarchically and horizontally (Frow et al., 2010), confirming the critical role of how MCS can be perceived as a functional system in the strategy execution process. The producer of the continuous functional information flow of the MCS must support strategy inconsistency as intended strategies can be realized, or not, while unintended strategies are realized (Mintzberg, 1977).

The continuous balancing of paradoxical tensions and managing the horizontal and vertical ambidexterity suggests that the producer of the information flow can be considered a lever for a functional MCS, therefore, a requirement of a functional MCS. The information flow

must dynamically balance a temporal paradox of promoting predictability to achieve trust for managers to decide to achieve internal organizational goals. In parallel, the information flow must support the firms evolving competitive position, providing information to translate strategic plans into specific actions while considering the unique and constantly changing dynamics in the extra-organizational context that fuels inconsistent strategy execution.

5. Requirements for a functional MCS

A simple 2-dimensional summation of the requirements from previous sections would not do justice to the scholarly work that this research has used, as the discussion of a functional MCS is a continuous paradox. Multiple scholars build on and re-interpret their seminal outline of Anthony (1965) that the MCS is a process by which managers assure that resources are obtained and used effectively and efficiently to accomplish the organization's objectives. The generalizability of the design and use of the MCS is not a simple task, as each organization has its contingent context and unique strategy. This research does not discuss the design or use discussion of the MCS but whether the MCS is functional for its purpose. There is scholarly clarity that MCS is a process and must serve the organization's objectives. If the MCS serves this purpose, it can be considered functional.

From the personal observation of decades of practical business experience, practitioners often refer to the complexity of the organization. MCS are complex in themselves, and they interact in complex ways with the settings in which they are used (Merchant & Otley, 2020). Anthony and Govindarajan (2004) confirm the required fluidity of the MCS process. In a predictable extra-organizational context, organizations can first develop the strategy and then design the MCS to execute the chosen strategy. In a dynamic extra-organizational context, the strategy evolves and emerges, and these strategies are influenced by the MCS process (Hartmann et al., 2021, p. 226).

The first paradox is the temporal effect on the individual components of the MCS and the MCS as a whole. The time horizon is a dotted line in most criticism on the mainly cross-sectional approach of MCS research fueling the scholarly debate regarding its design and use. The second paradox is the mechanistic and organic information flow while considering the first paradox. The third paradox is the ambidexterity of exploiting present strategy while supporting exploratory strategies. The fourth paradox is the top-down and bottom-up perspectives of aligning behavior and results with deliberate and emerging organizational strategies. Finally, the fifth requirement is the driver that needs to design, implement and ensure that the MCS is continuously functional.

Next to the dynamic organizational context (1), MCS must purposefully (2) support strategy execution by strengthening the MC process (3) of influencing behavior to achieve organizational goals through an active information process considering the temporal effects (4) of inconsistent strategy and organizational ambidexterity.

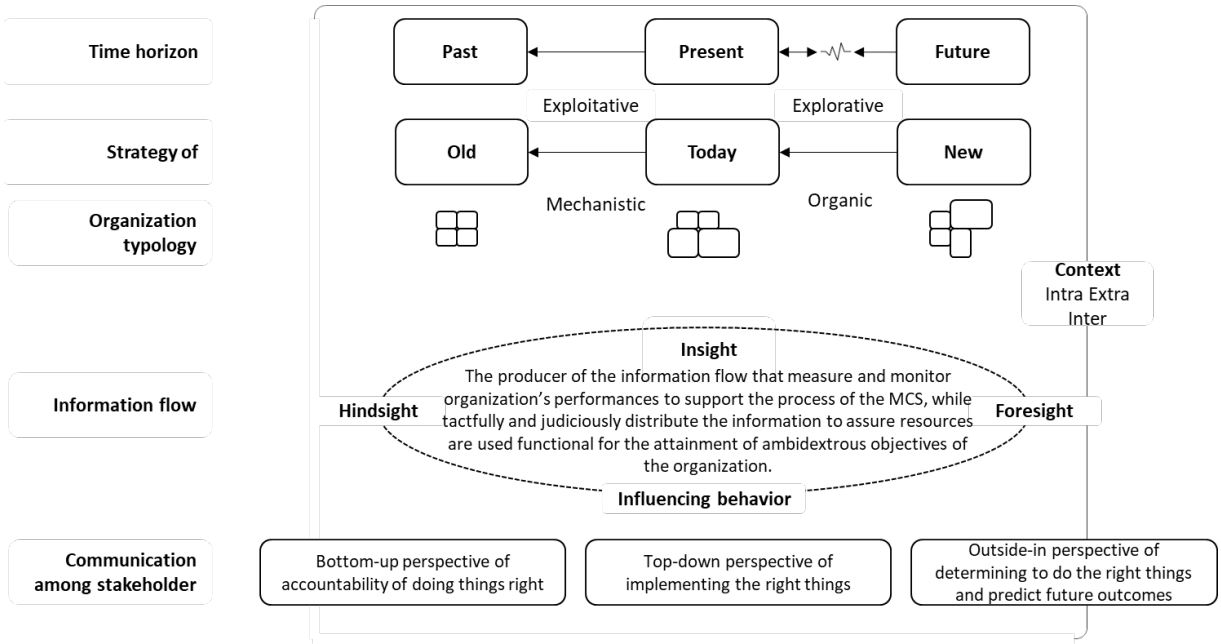

Figure 1: paradoxical requirements of a functional MCS

Figure 1 is a 2-dimensional presentation of the multiple paradoxical requirements scholars purposely and unintentionally mentioned in their scholarly work to determine if an MCS serves its purpose. The opportunity of the figure is not to present scholarly completeness nor proof of the conceptual depth of the requirements of a functional MCS. Instead, it should be recognized as a conceptual view illuminating under-researched MCS areas and providing opportunities for further research while providing a real-world handheld for practitioners.

6. Conclusions and suggestions for further research

MCS has a fertile foundation with continuously emerging themes (Berry et al., 2009; Demartini & Otley, 2020; Reimer et al., 2016b, 2016a). However, there are limitations, as the paradoxical findings richly suggest. Nevertheless, this research has provided insights that there is a considerable body of knowledge providing a solid base for general paradoxical propositions between the elements of the MCS, the MCS holistically, and the context in which the MCS needs to perform functionally.

Though this research responds to the call for more field research (Merchant & Otley, 2020), it is detached from any organizational context, diminishing its value unless it is field research. The research in this paper is drawn on the extant MCS literature, inductively reasoning the content of the data. From personal observations in various organizations over the last decades, practice is ahead of academic theory. Technological advances, new legislation, digitization of the workforce, pandemics, and naturally occurring events (e.g., new CEO) have influenced MCS to be functional or not. As this research originates as academic-led, with academic knowledge being transferred to practice, it is a call for practice-led research, with the academic contribution being relegated to the description and perhaps explanation of practice (Chenhall, 2003).

MCS practices are affected by a multitude of factors, and the role of the controller should be at the center of it. Following this call for research, the controller should be considered a lever for a functional MCS. This can be considered a focal point of discussing the formal and informal systems with the information flow at its heart. MCS research should not focus on 'average

practices', but on exemplars that have been functional in strategy execution, dealing with the discussed paradoxes in this research.

Expanding the exemplars' bandwidth can involve leading-edge practice and failures or similarities across divergent settings to explain variations in practices (Merchant & Otley, 2020). This calls for field longitudinal research to prove the institutional practicality of MCS theory; therefore, MCS researchers should visit practitioners to gain institutional knowledge and learn from practice.

Field longitudinal research should prove that the paradoxes in this research might not be an exhaustive list and the individual paradoxes need more research to be scholarly and clear, otherwise leading to parsimonious theories.

The paradoxical findings in this research can encourage contingency-based research to uncover generalizable findings on whether or not an MCS can be considered functional for an organization's unique strategy acting in its context. By exploiting existing academic knowledge, this research urges explorative MCS research, which is an important avenue for future contingency-based research and remains relevant for practice. The challenge is to build on the fundamental contingent practices, more dynamic, action research type activities over a period, following changes and effects of management control systems supporting strategy execution. This is likely to enrich theory and assist practice. Such a research agenda might involve research areas such as strategy, information technology, organizational and cultural change, and human resource management as explorative MCS research might provide challenges for mainly non-functionalist researchers. Contingency-based research integrated with functionalist research might provide integrative thinking about the sociological processes affecting MCS in action and combine these insights with conventional elements of contingency-based models (Chenhall, 2003).

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