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Management Control Systems' Function in Innovation: Development, Applications, and Perspectives from Current Research.

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Abstract

This paper has explored the evolutionary relationship between Management Control Systems and innovation to understand how MCSs can motivate, rather than stifle, organizational creativity. For an extended period, management control systems represented an obstacle to innovation because these systems focused exclusively on stability, efficiency, and control activities. However, recent scholarship shows that, by managing related tensions between power and creativity, MCS can support innovations that enable organizations to pursue both effective short-term outcomes and longer-term strategic ends. This paper traces the evolution of MCS research from traditional perceptions of control as a barrier to innovation to more modern approaches, which view MCS as an enabler of creative processes. The paper discusses the complexity of integrating innovation into MCS frameworks and stresses the role of qualitative research in capturing the dynamic, evolving interactions between these systems and innovation. The following paper reviews recent theoretical and empirical findings and develops a framework that highlights the importance of flexible, complex control mechanisms for innovation. This study encourages further qualitative exploration into how MCS can balance control with creativity to enhance organizational success and long-term growth.

Keywords: *Control Mechanisms, Innovation, Management Control Systems, Organizational Development, Qualitative Research.*

1. Introduction

Innovation is not a sequence of haphazard events at particular historical junctures, but a manageable organizational process. This viewpoint emphasizes the application of intentional strategies to position innovation as a key source of competitive advantage and value creation, as claimed by Distanont and Khongmalai (2020). Accordingly, managers must seek solutions or instruments, such as Management Control Systems, to trigger and manage innovative activities. This recognition gives full weight to MCS's role in enabling organizational innovation.

Historically, MCS and accounting systems were often perceived as inhibitors to innovation. This traditional view suggested that mechanisms of control restrain freedom, creativity, experimentation, and flexibility necessary for innovation. Control was perceived as encouraging employee conformity and complacency, which is counterproductive in dynamic, risk-taking environments that call for innovation (Kuecher, 2013). Furthermore, the traditional MCS design is risky and has a high failure rate (Barros & Ferreira, 2019). Such systems were regarded as hindrances to organizations' efficient exploration and exploitation of new opportunities and were considered incompatible with the innovation involved (Jarrar & Smith, 2014).

Over the past decade, however, this view has been challenged by a growing body of studies. Recent studies have identified MCS as a facilitator of innovation rather than an obstacle. Systems can support decision-making throughout the innovation process, inspire creativity, and manage information flow at every hierarchical level within a corporation (Kong Ang-yu & Xiang-yang, 2007). Such a setting also leads managers to search for opportunities but maintain sight of organization-wide objectives (Azad et al., 2024). The evolving perspective on the relationship between MCS and innovation has fueled growing scholarly research.

However, the intersection of MCS and innovation is complex and manifold. Innovation processes are inherently complex,

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with many controls, synergies, and tensions. This complexity justifies a qualitative research approach to capture subtle interactions between MCS and innovation. Such methods can be used to investigate how MCS may facilitate innovation in managing the related tensions and dynamics that arise in controlling creativity.

By examining the typologies and tactics companies have used to shift from traditional to modern viewpoints, this study seeks to trace the evolution of MCS research and the changing opinions on its role in fostering innovation. The idea that comprehending MCS's role in promoting innovation necessitates contextualizing these systems in their historical and environmental settings is at the heart of this investigation. In light of recent advances in the literature, this paper argues that qualitative methods are the next natural step for the subject of study.

Building on earlier reviews, this study makes three critical contributions. First, it distinguishes between two distinct phases in the research on MCS and innovation. The initial phase reflects traditional views of MCS as inhibitors of innovation, whereas the second phase highlights a more contemporary perspective that positions MCS as an enabler of innovation. This difference reflects the development of the discipline's philosophy and views regarding control systems over time.

The paper also summarizes recent theoretical and empirical research findings that have shed light on the complex interrelationship between MCS and creativity in contemporary organizational settings. It emphasizes the importance of qualitative approaches to capture the evolving dynamics of innovation, particularly as they relate to the use of multiple controls, the synergies and tensions that arise, and the behavioral aspects of control mechanisms.

The study contributes to the methodological discourse by calling for qualitative research into the intersection of MCS and innovation. Qualitative approaches enable the capture of holistic, dynamic features of such interactions, given the continuous evolution of innovation processes, and offer rich, detailed insights that might be lost with quantitative methods.

Using foundational works in management accounting and control, this study examines the development and characteristics of MCS in fostering innovation. It draws upon both management and accounting literature, especially those studies that have analyzed formal control mechanisms. The study also covers related concepts, such as creativity, to provide deeper insight into the role of MCS in innovation.

In this regard, the research methodology followed a snowballing approach whereby works highlighting essential aspects of MCS and innovation were further considered and added to the reference list. Other sources were identified through regular screening of leading accounting journals to ensure broad coverage of the literature on the subject. The search process was completed by the end of 2024, marking a comprehensive effort to synthesize existing knowledge and identify avenues for future research in this evolving field.

2. Conceptual Framework

2.1. Management Control Systems

It is challenging to define MCS since there are numerous perspectives and no consensus in the literature. For this study, an inclusive definition has been adopted to capture the whole essence and scope of MCS. MCS can be defined as formalized routines and procedures that managers use to influence, maintain, or alter organizational behavior to accomplish strategic goals. This definition highlights the close linkage between MCS and organizational strategy for the successful implementation and achievement of strategic objectives.

This understanding positions MCS as a dynamic, multifaceted process that centers on the use of information. These systems can vary widely in complexity, from simple mechanisms to elaborate frameworks, depending on the organizational context and the level of control required. The versatility of MCSs is evident in their ability to incorporate diverse elements, such as performance measurement systems, budgeting tools, and overarching control frameworks, all of which contribute to operationalizing strategic goals (Bedford, 2015).

The fact that MCSs can integrate multiple control mechanisms into coherent systems testifies to their adaptability in rapidly changing organizational environments and demands. Such a perspective permits a detailed inquiry into the development of MCSs and their increasingly crucial role as drivers of innovation within organizations. In this regard, MCSs have become an essential tool, enabling stability and adaptability to help organizations thrive in dynamic, competitive environments by bridging traditional control functions with innovation-oriented approaches.

With this comprehensive framework, the study seeks to investigate the historical evolution of MCS and its modern applications in fostering innovation. By linking these systems to strategic objectives, the research offers valuable insights into how MCS balances control and creativity, enabling organizations to achieve sustainable growth and development.

2.2 Innovation

Innovation is a multifaceted concept with varying definitions across authors and research traditions, making it difficult to define succinctly. Studies have shown that economic development is driven by innovation, which can take several forms, such as a new product, a new method of production, a new organizational structure, a new source of supply, or the exploration of new markets (Verspagen et al., 2010; Raghupathi & Raghupathi, 2017; Daraojimba et al., 2023).

Several authors have interpreted innovation as a process through which new ideas are implemented (Dogan, 2017; Vettik-Leemet & Mets, 2024). This perspective underscores the relevance of MCS, viewing innovation not as a random event but as the outcome of organizational processes that can be managed (Bisbe & Otley, 2004; Chenhall & Moers, 2015). Akroyd et al. (2016) further suggest that as new product development became more central to company strategies, so

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did the role of MCS in coordinating and controlling these processes. Kalogiannidis et al. (2022) also proposed that MCS can be flexible enough to accommodate the unpredictability of innovation while remaining stable enough to provide structure, reinforcing the notion that innovation is an organizational process that can be managed. The study further argued that organizational processes related to innovation, at both the strategic and managerial levels, include the internal capabilities necessary to identify, nurture, and transform the seed of an idea into value.

This view differentiates innovation from creativity, although the two are closely connected. Anderson et al. (2014) define creativity as generating novel ideas, which they view as the initial step in the innovation process. Somech & Drach-Zahavy (2011) also explore creativity, describing it as the production of new ideas. However, from the perspective of Miller et al. (2020), innovation is the creation and successful implementation of ideas, leading to new processes, products, or services that ultimately improve organizational outcomes.

3. Early Theories of MCS and Innovation

The connection between MCS and innovation has evolved considerably, influenced by economic theories and shifts in business practice. In the early stages of MCS development, the focus was primarily on organizational stability, control, and efficiency. While recognized in economic theory, innovation was not a central element in MCS frameworks. Over time, however, the understanding of how MCS could influence or be influenced by innovation emerged, mainly through Schumpeter's theory of innovation and its role in economic development.

3.1 Schumpeter's Theory on Innovation and Economic Development

Joseph Schumpeter, a pivotal figure in economic thought, significantly contributed to our understanding of the role of innovation in economic progress. Schumpeter viewed innovation as a tool for business growth and a fundamental driver of economic transformation. Central to his theory is creative destruction, a process whereby innovations replace outdated business practices, technologies, and industries. Schumpeter argued that this ongoing process of disruption was essential for the continuous evolution of economies. In his view, innovation—through new products, processes, markets, or organizational structures—reshaped industries and economies, driving growth and economic development (Śledzik, 2013).

Schumpeter identified five distinct types of innovation: the introduction of new products, new methods of production, new markets, new sources of supply, and new organizational structures (Serrat, 2017). These were radical innovations, not incremental ones; they challenged the existing industries and opened up new possibilities. In Schumpeter's vision, the entrepreneur was the key player in that change, emphasizing risk-taking and challenging the status quo. His theories underlined that innovation is a source of economic dynamism and long-term growth, framing innovation as a process of creative destruction- a continuous process of destruction and renewal.

Schumpeter's ideas had profound implications for the development of Management Control Systems. If innovation was seen as a central economic driver, it followed that MCS frameworks needed to evolve beyond merely ensuring operational efficiency and stability. Introducing innovation into business operations requires new ways to control and manage this dynamic process. The traditional focus of MCS changed as firms realized that innovation was essential to their survival in competitive situations. Control systems are also needed to promote innovation and allow for flexibility.

3.2 Early Concepts of MCS

In the early to mid-20th century, the demands of industrialization greatly influenced the evolution of MCS. During this era, MCS was primarily concerned with ensuring that organizations were effective, stable, and predictable. MCS was implemented to monitor and administer business activities, ensuring smooth, efficient operations. Cost control, performance monitoring, budgeting, and planning were key aspects of these early MCSs. The objectives were to standardize procedures, reduce risks, and ensure resources were used efficiently to meet organizational goals.

The emphasis on stability reflected the corporate environment of the time, which was defined by economies of scale and mass production as essential success criteria. In such an environment, innovation was often viewed as a disruptive force that could introduce uncertainty into well-established processes (Schot & Steinmueller, 2018). MCS was primarily concerned with managing routine operations, with little attention paid to how innovation could be integrated into control systems (Barros & Ferreira, 2023). If considered at all, innovation was often confined to specific departments, such as research and development (R&D), rather than being seen as a core component of the broader organizational strategy.

However, as industries evolved and competitive pressures increased, it became clear that organizations needed to be more adaptable and responsive to market changes. The role of innovation in MCS was reexamined in light of this change in emphasis. Organizations have to innovate to stay ahead of the competition since they can no longer afford to rely just on stability and efficiency. As a result, MCS frameworks began to evolve to support innovation, with an increasing recognition that traditional controls were insufficient to address the challenges posed by dynamic, rapidly changing markets.

3.3 Limited Focus on Innovation in Early MCS Frameworks

Initially, the role of innovation in MCS frameworks was limited, as early MCS theories largely ignored fostering creativity and innovation, focusing instead on monitoring and controlling established processes (Haustein et al., 2014). Innovation was typically seen as a task for specialized R&D departments, isolated from the broader control systems that governed day-to-day operations. The prevailing view was that innovation, while important, should be managed separately

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from the operational controls that maintained stability and efficiency within the organization.

The early MCS frameworks' lack of focus on innovation partially reflects the larger economic environment. In the industrial economy, businesses focused on minimizing risk and maintaining smooth operations (Manzini, 2012). Efficiency was important, and clearly, innovation introduced uncertainty. Therefore, a control system was necessary to minimize business variability and ensure predictability and stability in the industry's activities. This narrow view of MCS corresponded with the dominant business ideology of the time, focused on control at the expense of innovation.

The limitation of such an approach began to surface with time. Fierce competition and rapid technological advances compelled firms to abandon this notion to survive. When firms realized that innovation could not be treated as a peripheral organizational management issue, modifications began to be introduced in the design and implementation of MCS. Control systems could no longer focus on ensuring stability; they had to be adapted to support and encourage innovation.

3.4 Integration of Innovation into MCS Frameworks

MCS frameworks began to adapt to these new realities as businesses entered the information economy and technological developments transformed industries. Innovation became increasingly recognized as a key component of organizational success, and MCS evolved to support this new strategic priority. Modern MCS frameworks began incorporating mechanisms for encouraging creativity and risk-taking while maintaining control over operations. Performance measurement systems, for example, expanded beyond traditional efficiency metrics to include innovation metrics, such as the number of new products developed or the success of new market entries.

Additionally, integrating strategic management controls allowed organizations to align innovation efforts with long-term strategic goals (Daraojimba et al., 2023). In contrast to their predecessors, modern MCS frameworks incorporate procedures for tracking and maintaining innovation processes and for ensuring that innovative endeavors are aligned with strategic goals. This is a significant change from some early MCS theories, which held that companies' control systems needed flexibility to foster innovation. On the other hand, most of the organizations remained stable.

The introduction of frameworks, including the Balanced Scorecard, illustrated the progression by integrating learning and growth as key performance dimensions, recognizing that innovation and knowledge development would be crucial for long-term success (Yawson & Paros, 2023). This approach acknowledged that organizations needed to balance control and innovation, thereby creating an environment where both could coexist and thrive.

Efficiency, control, and stability were the main focuses of the early MCS theories, but innovation received relatively little consideration. The progressive inclusion of innovation into MCS frameworks began with Schumpeter's theory of innovation, which holds that entrepreneurs play a key role in driving economic progress through creative destruction. As businesses realized that innovation was necessary to sustain competitive advantage, MCS frameworks evolved to support creativity, flexibility, and risk management. Today, effective MCS focuses on maintaining stability and efficiency, and on creating an environment where innovation can occur and add value to organizations' short-term success and long-term growth.

4. Role of MCS in Innovation

In the current research landscape, the role of MCS in fostering innovation has been repositioned. Increasingly, scholars have conceptualized MCS as tools that balance control and flexibility, enabling organizations to support innovative activities. The study highlights the need for research on how MCS frameworks support innovation by encouraging strategic alignment, creative problem-solving, and methodical approaches to uncertainty.

4.1 Applications of Multiple Controls in Driving Innovation

Recent studies highlight that the evolution of management accounting practices has been driven by the adoption of more complex forms of control. These systems help managers foster innovation. Chenhall and Moers (2015) argue that calculative practices catalyze innovation development while providing insights into their impact.

Further studies suggest that contemporary control systems integrate traditional and emerging practices, placing greater emphasis on behavioral and organizational concerns. The research highlights the importance of using several control systems in concert. Bedford (2015) points out that a comprehensive strategy is necessary given the complexity of innovation, and that no single control style can simultaneously improve coordination and cooperation.

A more comprehensive viewpoint is offered by frameworks such as Simons' Levers of Control (LOC), which acknowledges the application of various control styles to investigate strategic uncertainty. By directing exploratory activities, validating initiatives, and encouraging creativity, interactive controls support innovation, according to studies employing LOC. In contrast, diagnostic controls yield mixed results: some studies highlight constraints on innovation, while others show a positive impact on organizational capabilities. While belief and boundary systems have been less studied, they remain essential. Value systems, which include belief and boundary systems, provide an infrastructure that supports innovation. Roberts et al. (2021) show how strategic narratives and belief systems align creative efforts with organizational goals. Furthermore, the control framework provides an alternative perspective on the relationship between innovation and controls.

According to some research, the risk aversion of highly innovative businesses makes outcome and action controls less appropriate for them. Cultural controls, on the other hand,

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encourage cooperation and tolerance for differing viewpoints. Furthermore, distinctions between input, behavioral, and output controls indicate that different forms of control are more effective depending on the type of innovation. Behavioral and input controls are preferred for radical innovations, while input and output controls align better with incremental innovations. In this context, MCSs are instrumental in reducing uncertainty and ensuring alignment with organizational goals.

4.2 Differentiated Use of Management Control Systems in Innovation

The use of MCS varies depending on the type, scale, and stage of innovation. Bisbe & Otley (2004) explored how different modes of innovation influence the use of MCS, finding that interactive controls enhance performance in exploratory innovation. At the same time, diagnostic and boundary systems are more helpful in refining existing capabilities. This aligns with the work of Chenhall et al. (2011), who showed that high-tech and low-tech sectors require different control systems, highlighting the contextual nature of controls.

Incremental and radical innovations also demand distinct management approaches. Rios (2015) argued that control systems should be adapted according to the type of innovation. Organic control systems support incremental and radical innovations, indirectly enhancing performance in radical innovation projects, whereas mechanistic controls show no such impact.

Moreover, the role of MCS evolves through the different stages of innovation. Bisbe and Otley (2004) observed that interactive and boundary controls with high uncertainty are more suitable during the early phases. In contrast, diagnostic controls are more relevant in later stages, where implementation is more structured. The dynamic nature of control systems across innovation phases is further supported by Ribeiro et al. (2022), who analyzed the development of Telepass, an innovative product in Italy.

Studies also show that companies with diverse innovation portfolios often favor frameworks like the Balanced Scorecard (BSC) for interactive controls, particularly during the creativity and idea-filtering stages (Dudic et al., 2020). Conversely, conservative companies emphasize value systems during the filtering phase.

4.3 Synergies, Dichotomies, and Tensions in the Use of MCS

The role of MCS in innovation has shifted from a perceived constraint to a recognized facilitator, depending on how these controls are applied. Biswas and Akroyd (2022) summarize this duality, observing that MCS enables and constrains creativity. This dichotomy reflects the tensions inherent in managing innovation through MCS.

According to Acar et al. (2019), controls can influence, enable, and drive creativity and innovation. On the other hand, a firm may need formal structures but may simultaneously strangle creativity, creating a dilemma for an organization that values creativity (Baucus et al., 2007). In this regard, Mitchell et al. (2023) suggest striking a balance between creative thinking and administrative controls. MCS promotes accountability and transparency by legitimizing the procedures of external stakeholders.

The Levers of Control (LOC) framework illustrates this balance between enabling and constraining forces. The framework shows that integrating multiple controls, rather than relying on a single approach, helps address the competing demands within organizations. Dichotomies such as diagnostic versus interactive controls, mechanistic versus organic controls, and tight versus loose controls underscore the complexity of MCS in fostering innovation.

These tensions have a significant impact on innovation outcomes. Chen et al. (2019) describe how tensions between different calculations can shape innovation, linking it to broader organizational objectives such as growth or profitability. Other studies highlight that combining interactive and diagnostic controls can create dynamic tension, fostering innovation even in uncertain environments.

The use of multiple controls can also generate synergies. Bruton and O'Dwyer (2018) concluded that different combinations of controls can create both synergies and tensions. In this context, a nuanced understanding of these dynamics is crucial for effectively leveraging MCS in innovation. In short, MCS causes organizational conflicts by enabling and constraining activities. These tensions affect innovation outcomes and sometimes lead to conflictual or synergistic relations. Understanding these dynamic forces is imperative for effectively managing innovation processes through the MCS. Table 1 presents the breakdown of s**ynergies**, d**ichotomies**, and t**ensions** in the use of MCS, based on the studies selected for this paper.

Table 1: Synergies, Dichotomies, and Tensions in the Use of MCS for Innovation

Category	Key Points
Synergies	MCS promotes accountability and transparency by legitimizing procedures for external stakeholders (Mitchell et al., 2023). Integrating multiple controls fosters synergies that balance competing demands within organizations (Bruton & O'Dwyer, 2018). Combining interactive and diagnostic controls can create dynamic tension, fostering innovation even in uncertain environments (Chen et al., 2019).
Dichotomies	MCS enables and constrains creativity, reflecting a dual role in managing innovation (Biswas & Akroyd, 2022). Tensions exist between diagnostic versus interactive controls, mechanistic versus organic controls, and tight versus

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	loose controls, showcasing the complexity of fostering innovation through MCS (Levers of Control (LOC) framework).
Tensions	Controls can both enable and stifle creativity and innovation, creating dilemmas for organizations that value innovation (Baucus et al., 2007; Acar et al., 2019). Balancing creative thinking and administrative controls is essential to managing the inherent tensions in innovation (Mitchell et al., 2023). Tensions between enabling and constraining forces impact innovation outcomes and broader organizational objectives such as growth and profitability (Chen et al., 2019). The dynamic between enabling and constraining activities in MCS may lead to either conflictual or synergistic relations, significantly affecting innovation outcomes (Bruton & O'Dwyer, 2018)

5. Qualitative Approaches and Potential Research Directions

The previous section, therefore, highlights key arguments supporting our recommendations for future research. This section is still at an embryonic stage of research. Several scholars have called for further exploration of how control practices contribute to and interact with innovation; this study, therefore, calls for more such studies, supported by insights from the reviewed literature. A body of knowledge is emerging, but a deeper analysis is still warranted. This brings us to a second point: the analysis thus far shows that control and innovation are complex, multi-dimensional realities that are not easily studied. Many factors could determine this relationship, with similarly varied impacts.

By nature, innovation is complex and uncertain, unfolding unpredictably (Pellissier, 2025). Innovation is not a single concept but involves processes requiring different controls (Dogan, 2017). Also, as noted by the management control literature, MCSs do not operate in isolation but are intertwined (Malmi & Brown, 2008; Jansen, 2021; Deun & Corbey, 2023). This literature opined that examining isolated forms of control has little practical relevance. Thus, studying the effect of any control practice requires an understanding of how it interacts with other practices.

These points strengthen our argument for adopting more qualitative approaches to examine the role of MCS in innovation. Qualitative research offers a nuanced perspective on the complexity and intersection of control and innovation. Mwita (2022) observes that qualitative methods represent the only way to comprehend the complex nature of accounting practices. Quantitative empirical research often offers a narrow view, treating organizations as cohesive units and people as rational actors (Khan et al., 2023). It does not consider the dynamic aspects that qualitative research may reveal. As Tenny et al. (2022) opined, qualitative research opens the possibility of asking questions no one has previously bothered to ask, of interrogating them to understand better, and of reconstituting what we thought we already knew.

It would be valuable to expand case-based research, drawing on rich empirical data collected from diverse sources within the contexts studied. As Fosso Wamba et al. (2019) suggest, case studies offer detailed insights into human actions and interactions regarding the use of accounting information. Multiple case studies could be conducted in innovative and non-innovative environments (Käss et al., 2024). Qualitative research, especially longitudinal field studies, would provide deeper, contextually embedded insights into the perceptions, realities, and behaviors of those involved (Tenny et al., 2022; Oranga & Matere, 2023).

While qualitative research in this area is beginning to emerge, a wealth of unexplored topics remains. This provides ample opportunity for future research in this field. Based on this methodological approach and the foundational points discussed earlier, we suggest several promising research directions that could inspire further inquiry.

6. Examining Management Control and Innovation through Multiple Controls

As mentioned above, several control mechanisms would likely be adopted. Still, the extent and how they would be applied would differ among firms and projects based on the nature of innovation sought. Moreover, that would be based on the design and usage of the MCS. Although this has been discussed in some management control literature, these issues remain substantially underexplored by scholars.

Case studies could offer detailed insights into the diverse range of controls companies implement and their effects. Since the use and consequences of multiple controls are challenging to ascertain, case studies could also help explore how control "packages" or systems are applied in innovation contexts (Otley, 1999; Guo et al., 2018). Moreover, control mechanisms often function as complements or substitutes, and neglect of their interdependencies might lead to inadequate insight into effective innovation management. These features call for an in-depth presentation backed by accurate data to provide practical insights and help reduce current gaps. As Omar (2023) points out, the literature in this area is limited, and our understanding of how accounting practices can be effectively applied to innovation remains underdeveloped. This also holds for MCS, where the simultaneous use of different techniques for various purposes is not yet fully understood.

The evolving nature of controls across project phases, as highlighted by Rauter et al. (2023), should also be examined

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to understand how this evolution influences innovation. Extending this to the organizational level, we might also expect the evolution of controls to help guide companies toward more innovative behaviors, which could be further explored. Relevant questions include: How do MCS evolve in environments that require creativity and innovation? What are the links between controls over time and their impacts on innovation?

In addition to the diverse uses of controls, the LOC (Levers of Control) framework offers additional avenues for exploration. The roles of belief and boundary systems in fostering, as suggested by Widener (2005) and Tekavčič et al. (2011), underscore their importance. Chen et al.'s (2019) findings suggest that innovation should be aligned with a strategic narrative to leverage the motivational framework it offers. Thus, a more comprehensive analysis of how belief and boundary systems impact innovation could be explored. Key questions include: How do belief systems specifically influence behavior and the development of new products? How can boundaries be set without stifling creativity and hindering the experimentation required for innovation? How do belief and boundary systems interact with and impact the use of other types of controls?

Finally, the role of diagnostic control systems (or traditional control mechanisms) in new product development is an area of interest. Beyond the debate of whether they constrain or enable innovation, there are times when diagnostic systems may be necessary or beneficial. Frezatti et al. (2017) concluded that diagnostic controls are more frequently used during the commercial or final stages of radical innovation projects. Future research could investigate how and when MCS is used diagnostically and with other control systems.

Synergies and Tensions in MCS: Exploring Management and Innovation

Using multiple control systems (MCS) and how managers apply them often give rise to both synergies and tensions. While some insights into this dynamic have been established, many aspects remain unexplored. By examining MCS as a cohesive system, researchers can delve deeper into emerging tensions.

Frameworks for analyzing the uses of MCS, such as Simons' LOC framework, address these dynamics to some extent. A notable research focus within this framework has been on the mutually reinforcing relationship among the four levers of control (Martyn et al., 2016; Curtis et al., 2017). This framework emphasizes that the complementarity and dynamic tensions arising from the simultaneous use of all four levers are essential to manage innovation and efficiency effectively. As Pelser and Gaffley (2020) highlight, balancing these systems is critical for successful organizational outcomes. However, existing literature primarily concentrates on the tension between diagnostic and interactive systems. Thus, further research is necessary to better understand how the dynamic interplay among all four of Simons' control levers can be managed and harmonized to foster innovation.

Beyond Simons' framework, other types of tensions merit investigation. Haghseta and Choucri (2007) explored the tension arising from the coexistence of two forms of innovation within an organization rather than focusing solely on the interplay between different control levers. Similarly, Helfrich et al. (2007) identified a unique tension stemming from project managers simultaneously being under control and in control of their projects.

The LOC framework offers a valuable perspective on how organizations internally manage tensions arising from innovation-related activities. This presents a compelling avenue for future research, where case studies could provide nuanced insights into the practical applications of these dynamics. By investigating the role of MCS in mitigating or leveraging tensions, scholars can uncover actionable strategies for balancing innovation and efficiency within organizations.

The Behavioral Aspects of Innovation Management Control

Examining the distinct behavioral facets of managerial control and creativity is another intriguing line of inquiry. Bollinger (2019) asserts that knowledge, originality, and drive are essential to creativity. Other research could examine how MCS influences these behavioral elements, even if previous studies have only partially shed light on how power influences innovation. While it is postulated that the components of MCS may facilitate or hinder the employees' attitudes to innovation, an unexplored link exists between Simons' framework of LOC and a person's motivation to be creative (Haustein et al., 2014). Therefore, interviews and case-based studies could provide exploratory analyses to explain these relationships.

The dynamic interplay between MCS and innovation over time also deserves attention. For example, how does MCS reshape organizational perspectives on innovation, or how do new product developments drive changes in MCS? Future studies could investigate how variations in MCS influence internal innovation processes, or how control practices specific to new developments align with—or diverge from—an organization's overall control framework.

Another underexplored area concerns the role of MCS in shaping sense-making and decision-making processes related to innovation. The utilization of organizational behavior theories could deepen such analyses. Faßauer (2018) used Merton's anomie theory to investigate the influence of control frameworks on innovative behavior. Another helpful approach is institutional theory, which focuses on actors' roles within institutional dynamics.

Further exploration of the relations of power and responsibility within organizations is also needed. Key questions include: How do existing power structures impact innovation? How does MCS distribute and manage responsibility? Gomez-Conde et al. (2021) highlight that material forces may guide the development of MCS. A deeper understanding of how businesses manage innovation processes may be achieved by examining how financial opportunities, legal frameworks, and environmental demands for innovation affect MCS and control methods.

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7. Conclusion

From the traditional view of control mechanisms as a hindrance to innovation and flexibility, the recognition of their role in facilitating innovation within companies has led to a shift in how management control systems are perceived in the context of innovation. MCS was once seen as an instrument that sustained efficiency and stability, but its core focus on control and risk aversion often hindered innovation. However, this perception has been met with a paradigm shift in the modern era of competitive pressures and dynamic business operations. As organizations increasingly rely on innovation to sustain competitive advantage, MCS frameworks have evolved to support creativity, risk-taking, and the strategic alignment of innovation with organizational goals.

Integrating innovation into MCS frameworks reflects a growing awareness that the control mechanisms should balance stability with flexibility to enable the operations milieu and exploration toward creativity. Indeed, through recent MCS frameworks such as the Balanced Scorecard, organizations have incorporated performance measures reflecting innovation and efficiency, enabling innovation to move from an add-on, peripheral activity to an integral part of organizational success.

The complexity of managing innovation within control systems is reflected in the variety of mechanisms that organizations deploy to support creative processes while retaining necessary control. This evolving relationship between MCS and innovation calls for more comprehensive research, mainly through qualitative approaches, to capture nuances in how these systems function in practice. While recent studies have focused on multiple controls and their synergies or tensions, more is needed, particularly on how organizations may employ various control systems to enable innovation in different stages and contexts.

Schumpeter's theory of innovation, which emphasizes creativity and destructive power, underscores the need for MCS that adapt and align with the economic and technological environments in which businesses operate. Because innovation has become a crucial determinant of growth in many industries, MCS will also be an ongoing enabler of this process, ensuring that control systems are perceived not as a barrier but as an enabler of creative and entrepreneurial activities. It underscores that to develop our current view of how MCS can support innovation, future empirical-qualitative studies must focus on multiple control mechanisms, integrating insights from modern complex businesses. Above all, the building up of the managerial control system into an enabler of innovation would amount to the essential evolution in organizational management itself, pointing towards controls in practice that have a degree of flexibility and are sufficiently robust so that creativity can happen; one will also run risks and develop long-term results.

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