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If Big Firms Need Managerial Innovation, How Much More Do Startups? – The Key Role of Management Control

Si l'innovation managériale est requise par les grandes entreprises, quelle en est l'urgence pour les startups ? – Le rôle central du contrôle de gestion

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Abstract
In fast-paced entrepreneurial environments, control is no longer the enemy of creativity—it is its unlikely enabler. This study investigates whether management control tools can be considered as forms of managerial innovation in startups, examining how they are adopted, adapted, and reinterpreted within organizations marked by uncertainty, growth, and strategic flux. Drawing on a hybrid methodology that combines a narrative literature review with a systematic review, this research bridges conceptual foundations with empirical insights from peer-reviewed articles indexed in Scopus and Web of Science. The findings reveal that control tools—such as dashboards, budgeting systems, and performance indicators—are increasingly mobilized by startups not just for oversight, but as strategic instruments for alignment, learning, and legitimacy. These tools act as radical innovations when they redefine managerial paradigms, as relative innovations when adopted for the first time, and as incremental innovations when customized through iterative learning. The study underscores the interplay between external institutional pressures and internal agency in shaping these trajectories. By reframing control systems as evolving and context-sensitive innovations, this paper contributes to a renewed understanding of how startups navigate the paradox of structure and flexibility.
Keywords : Managerial Innovation; Management Control; Startups; Innovative Business Model; Performance Management.

Résumé
Dans les environnements entrepreneuriaux en constante évolution, le contrôle n'est plus l'ennemi de la créativité : il en devient l'allié inattendu. Cette étude explore dans quelle mesure les outils de contrôle de gestion peuvent être considérés comme des formes d'innovation managériale au sein des startups, en analysant la manière dont ils sont adoptés, adaptés et réinterprétés dans des organisations marquées par l'incertitude, la croissance et l'instabilité stratégique. En s'appuyant sur une méthodologie hybride combinant une revue de littérature narrative et une revue systématique, cette recherche articule les fondements conceptuels à des résultats empiriques issus d'articles évalués par les pairs et indexés dans Scopus et Web of Science. Les résultats révèlent que des outils tels que les tableaux de bord, les systèmes budgétaires ou les indicateurs de performance sont de plus en plus mobilisés par les startups, non seulement comme instruments de contrôle, mais également comme leviers stratégiques d'alignement, d'apprentissage et de légitimation. Ces outils constituent des innovations radicales lorsqu'ils redéfinissent les paradigmes managériaux, des innovations relatives lorsqu'ils sont adoptés pour la première fois, et des innovations incrémentales lorsqu'ils sont personnalisés à travers un apprentissage itératif. L'étude met en évidence l'interaction entre les pressions institutionnelles externes et l'agence interne dans la structuration de ces trajectoires. En reconsidérant les systèmes de contrôle comme des innovations évolutives et sensibles au contexte, cet article propose une lecture renouvelée de la manière dont les startups naviguent entre structure et flexibilité.
Keywords : Innovation managériale ; Contrôle de gestion ; Startups ; Modèle économique innovant ; Pilotage de la performance.

Introduction

The relevance of management control in startups remains a paradox: while these ventures operate in highly volatile environments requiring flexibility and speed, they also face growing pressures to structure their growth and manage performance. In this context, the paper addresses the following research question: *Can management control tools be considered managerial innovations in startups?* To investigate this, the study adopts a dual methodological stance: a conceptual narrative review and a systematic review of recent empirical contributions. The objective is to reposition management control tools not as inhibitors of agility but as adaptable and modular instruments of managerial innovation.

In an increasingly turbulent and innovation-driven economic landscape, startups are compelled to reconcile agility with structure, creativity with accountability, and improvisation with performance monitoring. At the heart of this balancing act lies the challenge of managerial governance—how to guide fast-evolving organizations without constraining their innovative potential. This tension is particularly salient in the realm of management control, a function traditionally associated with stability, efficiency, and predictability. Yet, contemporary management literature has witnessed a paradigmatic shift: management control tools are no longer merely instruments of compliance or financial oversight. They are increasingly recognized as strategic resources, capable of enabling learning, adaptability, and innovation (Simons, 1995; Kaplan & Norton, 1996; Ferreira & Otley, 2009).

This evolution parallels a growing academic interest in managerial innovation—defined as novel administrative practices, structures, or techniques intended to improve organizational performance (Damanpour, 2014; Mol & Birkinshaw, 2009). While much of the innovation discourse has centered on technological change, recent studies emphasize that managerial innovation plays an equally vital role in shaping competitiveness and organizational renewal (Damanpour & Aravind, 2012; Whittington et al., 1999). The intersection between these two domains—management control and managerial innovation—opens up fertile ground for inquiry: *Can management control tools be considered managerial innovations? And if so, how does this dynamic manifest in the startup context?*

Startups offer a unique empirical laboratory to investigate this question. Characterized by their youth, small size, and innovation intensity, startups must navigate complex demands from investors, partners, and rapidly evolving markets. Contrary to popular belief, startups do not operate in a vacuum devoid of structure; rather, as they grow, they progressively develop formal and informal mechanisms to manage uncertainty and coordinate action (Meyssonnier, 2015;

Jorgensen & Messner, 2009). The literature increasingly documents the adoption of budgeting systems, dashboards, and cost accounting practices in these environments—not merely as tools of control, but as catalysts for strategic alignment, legitimacy, and organizational learning (Blatt, 2009; Davila et al., 2009; Aaltola, 2018).

Despite these insights, research remains fragmented on the nature and role of control systems in startups, particularly in relation to their innovative dimensions. Are these tools adapted from large firms, or do they emerge organically within entrepreneurial ventures? Are they applied in standardized forms, or reconfigured through iterative experimentation? And most crucially, to what extent do management control tools in startups qualify as managerial innovations—whether radical, relative, or incremental?

To address these questions, this paper adopts a hybrid methodological design, combining a narrative literature review with a systematic review of recent empirical studies. The narrative review maps conceptual foundations, tracing the evolution of control tools and their theorization as innovations. The systematic review, guided by the SPAR-4-SLR protocol, synthesizes empirical findings from peer-reviewed articles indexed in Scopus and Web of Science. Together, these two approaches aim to deliver a nuanced understanding of how management control tools function as managerial innovations in the startup context, shaped by internal agency and external institutional pressures alike.

Accordingly, the paper is structured into three main sections. The first section develops the theoretical background by exploring the evolution and functions of management control, the conceptual foundations of managerial innovation, and the particularities of control systems in startups, including their organizational specificities and patterns of use. The second section details the methodological design, combining a systematic review process guided by the SPAR-4-SLR protocol with a complementary narrative literature review. The third section presents the key findings from the literature, highlighting how management control tools are adopted, adapted, and interpreted as managerial innovations within the startup context.

1. Theoretical Background : Conceptual Foundations

1.1. Management Control : Evolution and Functions

Historically, management control has undergone a significant transformation, evolving through three major phases. Initially, it was grounded in a cost-efficiency perspective, as conceptualized by *Anthony (1965),* with an emphasis on operational discipline and variance analysis. This early phase aligned with the cybernetic model *(Woodward, 1970; Hofstede, 1978),* which framed

control systems as mechanistic feedback loops centered on financial indicators such as ROI, budgeting, and standard reporting.

However, the rigidity of this approach proved increasingly inadequate in contexts characterized by uncertainty and rapid change where responsiveness, learning, and adaptability are crucial. In response to these limitations, scholars like *Anthony (1988)* and *Kaplan & Norton (1996)* proposed a second and third evolution of control systems, moving toward strategic alignment and later toward holistic performance integration, incorporating environmental and social dimensions. This broader view paved the way for the emergence of interactive control systems, as developed by *Simons (1995)*, which emphasize strategic participation, real-time dialogue, and collective learning. Rather than merely monitoring outcomes, modern control systems enable innovation, foster responsiveness, and support the strategic adaptability of organizations. Empirical research confirms the complementarity between diagnostic and interactive uses of control, particularly in dynamic environments where innovation and performance must coexist *(Renaud, 2011; Widener, 2007)*. Today, management control systems integrate multidimensional indicators, including tools like the Balanced Scorecard, stakeholder-focused frameworks, and customized dashboards. These instruments extend the role of control from mere efficiency monitoring to strategic value creation, positioning it as a lever of transformation and managerial innovation.

1.2. Managerial Innovation: Definitions and Theoretical Approaches

The state of the art on managerial innovation highlights several key elements that allow for a synthetic understanding of its conceptual boundaries. A managerial innovation refers to any new process, structure, practice, method, or technique of management that is either novel in the absolute sense or perceived as new by the adopting organization. It must alter managerial work and aim to enhance organizational performance. Unlike technological innovation—which involves the development of new products, services, or production processes—managerial innovation refers to changes in administrative procedures, governance modes, or organizational design *(Mol & Birkinshaw, 2012; Cohen & Levinthal, 1990*).

While these two forms of innovation were long regarded as distinct and even incompatible, research since the 1990s has increasingly emphasized their interdependence *(Feigenbaum, 2005)*. Three main theoretical perspectives illustrate how these relationships unfold (*Table n°1*).

Table N°1: Relationship Types Between Technological and Managerial Innovation

Type of Relationship	Definition	Academic References
1. Technological innovation precedes managerial innovation	Technological innovation is developed first; the firm then adjusts its managerial practices to support it and overcome organizational barriers.	- *Hollen et al. (2013)*: After a phase of technological discovery, internal blockages require managerial adaptation. - *Damanpour et al. (1989)*: Sequential model where technical innovation precedes managerial innovation.
2. Managerial innovation precedes technological innovation	New organizational structures and practices foster the emergence of technological innovations by stimulating learning and knowledge creation.	- *Khanagha et al. (2013)*: Organizations must be designed to facilitate knowledge acquisition and diffusion, which precedes technological innovation. - *Averbe (2006), Ménard (1994)*: Organizational innovation leads to learning processes that reinforce technological innovation capacity. - *Damanpour & Evan (1984)*: Administrative innovation triggers technological innovation.
3. Managerial and technological innovations are interdependent	Both types of innovation are complementary and must be integrated simultaneously to maximize organizational performance.	- *Damanpour et al. (2009)*: Separating technical and social innovation is counterproductive. - *Ettlie (1988)*: Synchronous innovation model where both innovations must evolve together. - *Damanpour & Aravind (2012)*: Joint integration of both innovation types improves productivity and competitiveness. - *Whittington et al. (1999)*: Performance depends on their combined implementation.

Source: *Adapted from K. Dangereux (2016), originally based on Hollen et al. (2013).*

First, technological innovation may precede managerial innovation, as organizations often need to reconfigure their internal systems and routines to support the diffusion of new technologies *(Damanpour et al., 1989; Hollen et al., 2013).* Second, managerial innovation may act as a precursor to technological advancement by fostering knowledge flows, organizational learning,

and structural flexibility *(Khanagha et al., 2013; Damanpour & Evan, 1984)*. Third, an integrated view recognizes their mutual reinforcement: socio-technical systems theory asserts that technological and managerial innovations must co-evolve to fully unlock performance gains *(Damanpour et al., 2009)*. Studies by Whittington et al. (1999) and *Damanpour & Wischnevsky (2006)* further confirm that combining multiple types of innovation increases a firm's adaptive capacity and competitiveness. According to *Damanpour et al. (1989)*, the prioritization of a specific type of innovation depends on the organizational subsystem involved. When knowledge is primarily embedded within the administrative subsystem, change tends to affect organizational structures first, resulting in managerial innovation. Conversely, when transformations concern the technical subsystem, they are more likely to lead initially to technological innovation *(Daft, 1982)*. In conclusion, rather than being opposed, managerial and technological innovations are complementary and interdependent. Effectively managing the interaction between these two forms of innovation is essential for firms seeking to build technological absorptive capacity, enhance organizational flexibility, and strengthen long-term competitiveness.

1.3. Management Control in Startups

1.3.1. Organizational Specificities

Startups are defined by youth, small size, high growth potential, and innovation. As *Greiner (1972)* noted, growth phases generate managerial crises that require structured practices. While agility is critical, control mechanisms become indispensable as complexity increases. Contrary to the widespread belief that startups operate primarily through informal management practices, several scholars emphasize that these firms increasingly express a need for adapted tools to structure their operations and support their growth *(Redis, 2007; Meyssonnier, 2015).*

1.3.2. The Existence and Use of Management Control in Startups

Startups face a distinct *managerial paradox*: the need to preserve creative flexibility while satisfying investors' growing demands for transparency, structure, and accountability *(Lukka & Granlund, 2003).* Far from operating exclusively in informal ways, many startups progressively adopt management control tools to support their scaling efforts. The literature identifies three main categories of control tools commonly used in these environments. First, costing systems range from simple *ad hoc* methods to more formalized structures such as management accounting. Second, budgeting tools may take the form of basic forecasts or evolve into central instruments for performance management. Third, dashboards serve to monitor and steer

performance, whether through bottom-up approaches promoting interaction and learning (Simons, 1995) or top-down models focused on strategic alignment, such as the Balanced Scorecard *(Kaplan & Norton, 1996).*

Nevertheless, startups often substitute or complement formal systems with informal control mechanisms, especially in the early stages of development. As *Blatt (2009)* notes, these mechanisms include time-tracking for development teams, project management tools like Gantt charts, and performance indicators specific to R&D activities *(Karagozogolu & Brown, 1993; Jorgensen & Messner, 2010).* Several studies highlight the reluctance of startups to implement formal control systems. *Davila et al. (2009)* identify multiple inhibitors: efficient and implicit communication among founders, concerns that formalization may stifle creativity, limited organizational size, and a lack of technical expertise to design and deploy appropriate tools.

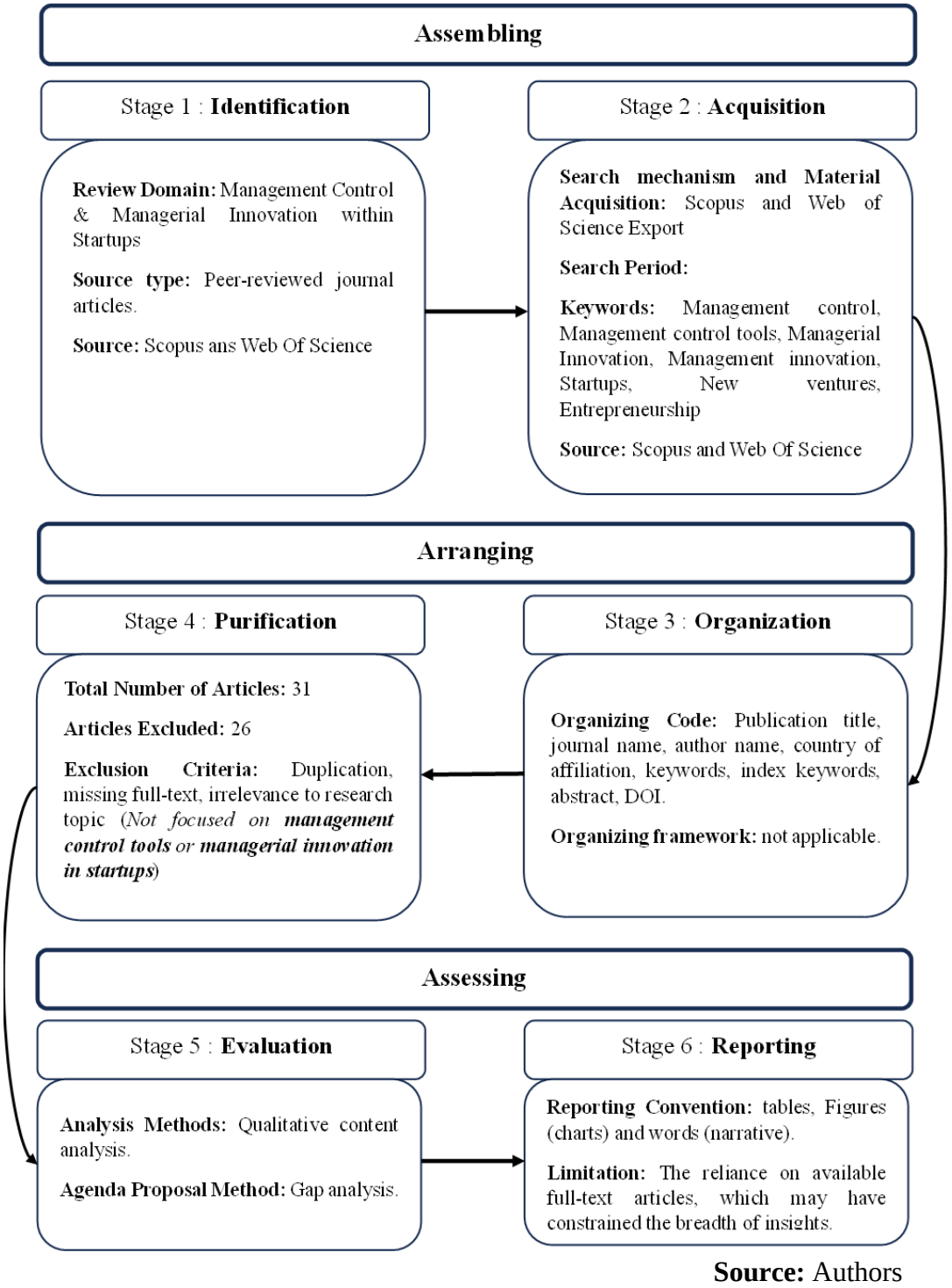
Despite these constraints, more recent research argues for a broadened and adaptive view of management control within entrepreneurial contexts. Elements of rationalization and performance monitoring are present, even if expressed through non-traditional forms *(Granlund & Taipaleenmäki, 2005)*. *Ferreira and Otley (2009)* advocate for a flexible framework that accommodates the specificity and volatility of startups. The diversity of practices observed in the literature underscores the complexity of the phenomenon and the lack of consensus on best practices. Empirical findings vary considerably depending on industry, maturity level, and leadership style *(Jorgensen & Messner, 2009; Alder & Chen, 2011).* This fragmented landscape gives rise to two fundamental research questions: *What factors influence the adoption of management control tools in startups? And how are these tools actually used to steer performance and support growth?*

2. Methodology

This study adopts a **semi-systematic review approach**, which combines the depth of a narrative review with the methodological rigor of a systematic review. It aims to synthesize both conceptual foundations and recent empirical findings related to management control tools and their positioning as managerial innovations in startups. This hybrid methodology allows for a nuanced and contextualized understanding of the topic *(Denisov, 2021).* Widely applied in management research, the semi-systematic approach offers a balance between flexibility and comprehensiveness by integrating both theoretical and empirical studies while maintaining a structured and transparent selection process *(Hiebl, 2021).* Its application in strategic management research also benefits from recent technological advancements that facilitate the organization and analysis of the existing literature *(Amjad et al., 2023; Ye et al., 2024).*

2.1. Systematic Review Process

This systematic review follows the **SPAR-4-SLR** framework, structured in **three phases**: assembling, arranging, and assessing. The review focused on management control and managerial innovation in startups, using peer-reviewed articles from Scopus and Web of Science. Keywords guided the search and **31 articles** were retrieved; **26** were excluded based on duplication, missing full texts, or irrelevance. The remaining articles were organized using a coding scheme (title, journal, authors, keywords, etc.). A qualitative content analysis and gap analysis were then conducted, with findings reported through narrative synthesis and visual aids. ***Figure n°1*** illustrates the methodological process.



Source: Authors

Figure N°1: Flowchart of methodology (SPAR-4-SL

2.2. Complementary Narrative Review Process

Within the narrative review, the relationship between management control tools and managerial innovation was examined through a conceptual and interpretive lens. The literature was explored to understand how management control tools have evolved, and whether their adaptation, reconfiguration, or integration into dynamic environments could be framed as managerial innovations. This involved analyzing theoretical contributions across disciplines to trace how control practices interact with broader managerial changes. The narrative approach thus served to map conceptual foundations and clarify how this relationship has been constructed, debated, or overlooked in prior research.

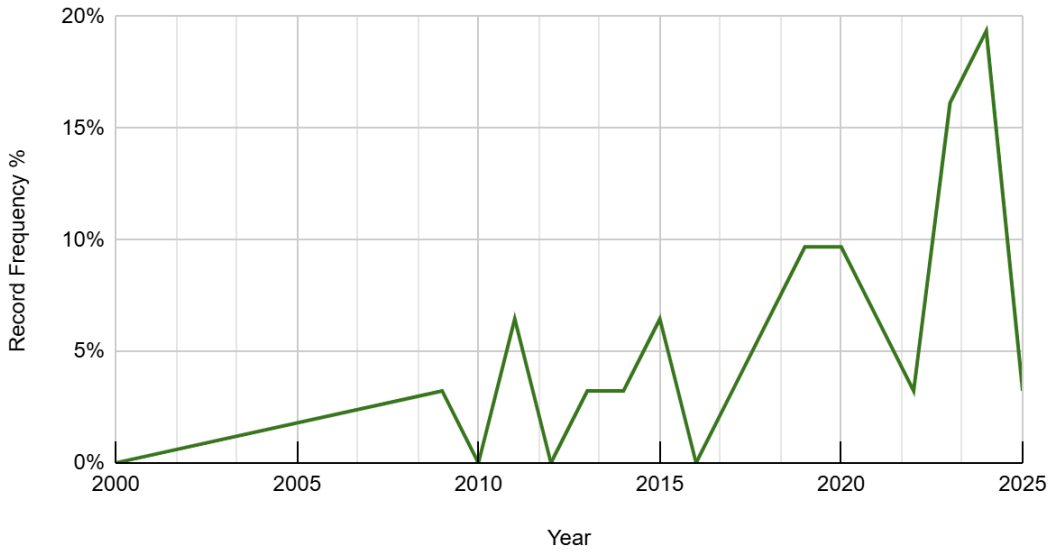
3. Key Findings

3.1. Descriptive Overview of the Systematic Literature Sample

To provide a contextual understanding of the academic landscape, the systematic review began with a quantitative overview of the literature identified. The figures below present key descriptive statistics: (1) **Annual Scientific Production,** (2) **Country Distribution**, (3) **Subject Area Classification**, (4) **Keyword Co-occurrence.**

3.1.1. Annual Scientific Production

Figure N°2: *Annual Scientific Production (2000-2025)*



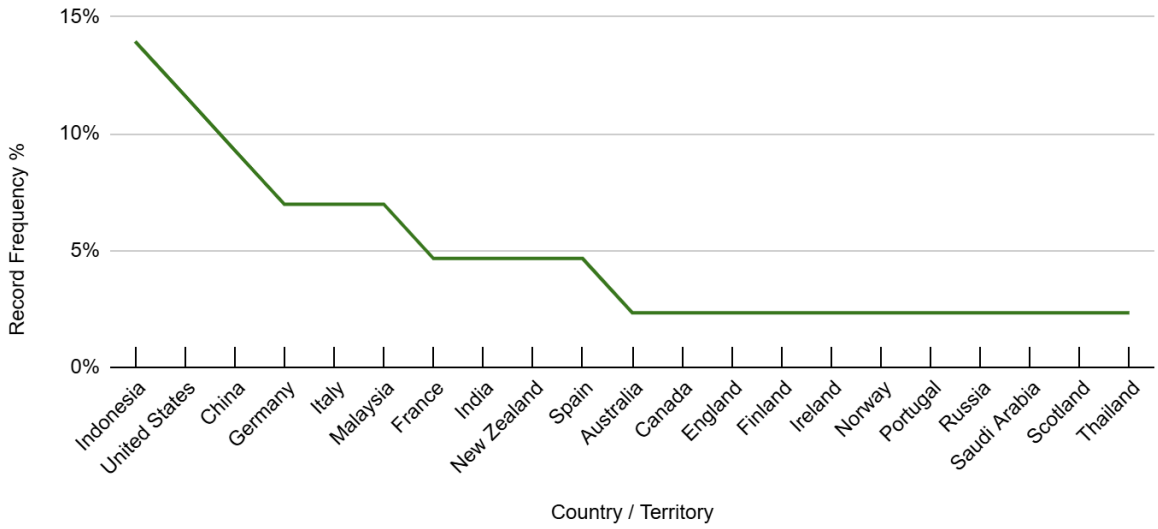
Source: Authors

The annual scientific production (*Figure n°2*) shows a notable increase in publications over the past decade, with a clear acceleration after 2018. Peaks are observed in 2023 and 2024, reflecting heightened academic attention to the intersection of management control and innovation in startups. Earlier years show sporadic contributions, with minimal activity before

2010. This trend suggests the topic is both recent and emerging. The frequency curve indicates growing scholarly momentum and relevance.

3.1.2. Geographic Distribution

Figure N°3: *Scientific Production by country (2000-2025)*

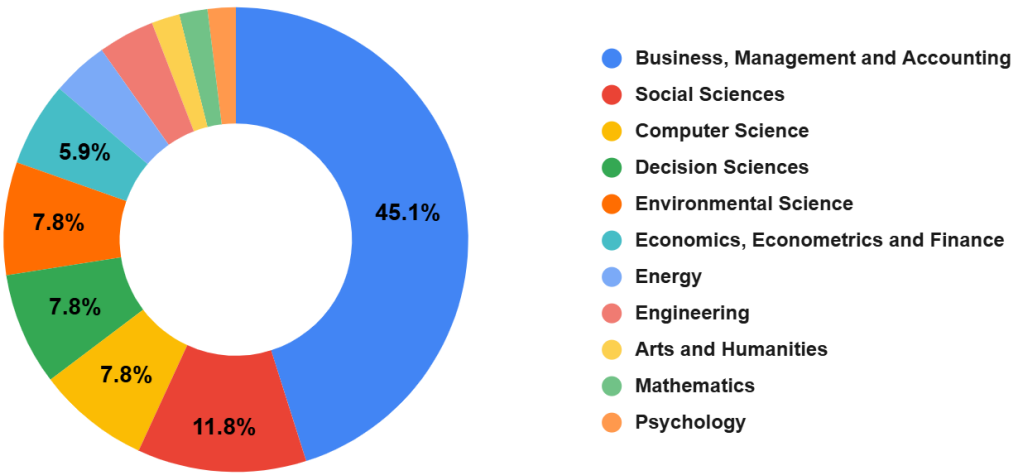


Source: Authors

The geographic distribution of publications *(figure n°3)* shows that Indonesia, the United States, and China are the most represented countries in the literature sample, with Indonesia leading at nearly 15%. Germany, Italy, and Malaysia also show notable contributions. European countries such as France, Spain, and the UK are present but less dominant. Overall, the dataset reveals a globally dispersed interest in the topic, though concentrated in a few research-intensive nations.

3.1.3. Subject Area Classification

Figure N°4: *Record by Subject Area*

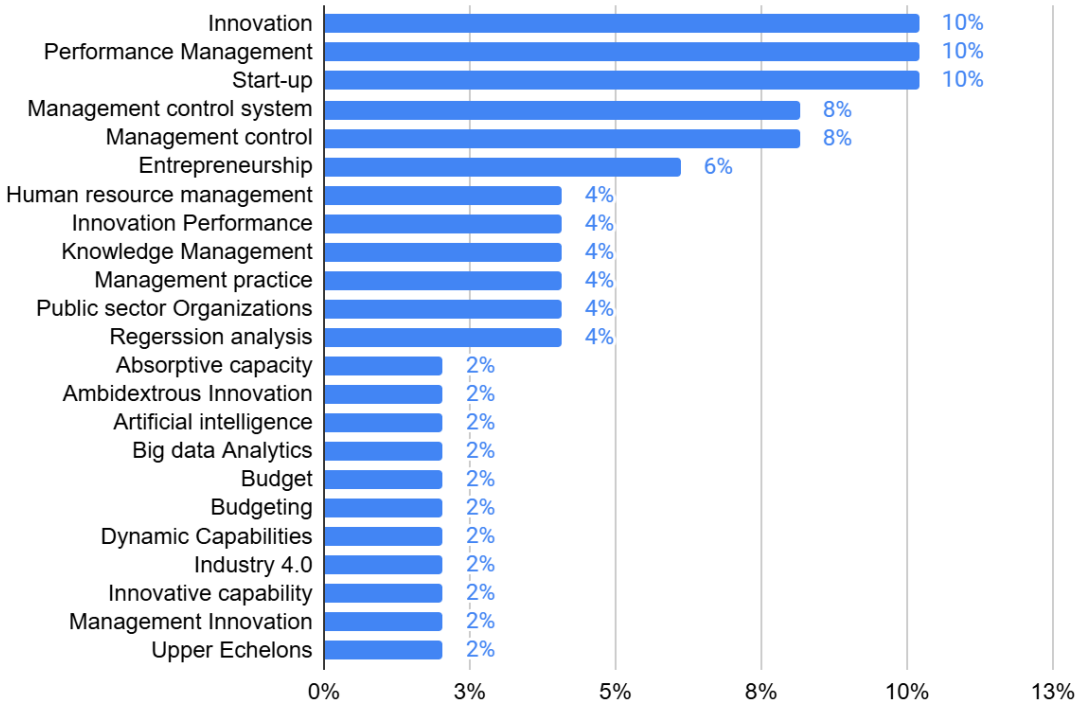


Source: Authors

Figure n°4 shows that the majority of the selected literature (45.1%) falls under Business, Management, and Accounting, indicating a core disciplinary alignment with the research topic. Social Sciences (11.8%) and several applied fields such as Computer Science, Decision Sciences, and Environmental Science (each 7.8%) also contribute significantly. A smaller portion of the literature intersects with Economics, Engineering, and other interdisciplinary areas, highlighting the topic's relevance across multiple domains.

3.1.4. Keyword Co-occurrence

Figure N°5: *Most used Keywords*



Source: Authors

As showcased in *figure n°5,* the most frequently used keywords in the literature sample are "Innovation," "Performance Management," and "Start-up," each appearing in 10% of the records. These are closely followed by "Management Control System" and "Management Control" (8%), highlighting a thematic intersection between innovation practices and control mechanisms. Terms like "Entrepreneurship," "Human Resource Management," and "Knowledge Management" also appear consistently, reflecting the multidimensional nature of the research field.

3.2. From Theory to Practice: Bridging Conceptual Insights with Empirical Evidence

Drawing from both the narrative and systematic reviews, we examine how management control tools are adopted, how they are used to monitor and steer performance, and whether their use constitutes a form of managerial innovation. By linking abstract constructs with evidence from the field, this analysis provides a grounded understanding of how startups navigate the dual imperative of maintaining flexibility while implementing structured systems.

3.2.1. What Factors Influence the Adoption of Management Control Tools in Startups?

The narrative review shows that the adoption of management control tools in startups is shaped by **both external pressures and internal strategic decisions**. From an institutional standpoint, startups face coercive, mimetic, and normative pressures that lead them to adopt tools aligned with market expectations or dominant practices (DiMaggio & Powell, 1983; Birkinshaw & Mol, 2006). These pressures are particularly acute in environments where legitimacy and investor trust are critical.

However, the internal dimension—grounded in strategic rationality—plays an equally vital role. The narrative review reveals that entrepreneurs often adopt tools to enhance **efficiency, strategic alignment, and differentiation** *(Damanpour & Wischnevsky, 2006).* This is reinforced by the extended institutional approach (Lounsbury, 2008), which highlights **entrepreneurial agency** in adapting or selectively adopting tools based on contextual needs, even engaging in symbolic adoption *(Meyer & Rowan, 1977).*

Empirical findings mirror this dual logic. *Bastian et al. (2024)* and *Setiyawan et al. (2024)* underscore how learning-oriented cultures drive the adoption of interactive and belief systems. *Piliang et al. (2025)* demonstrates how external technological turbulence pushes startups to adopt MCS for adaptability. Meanwhile, *Duréndez et al. (2023)* shows that internal factors—such as CEO financial literacy—mediate how MCS are adopted and used, emphasizing the internal shaping of control systems.

3.2.2. How Are Management Control Tools Used to Steer and Monitor Performance in Startups?

Both reviews converge on the idea that startups use MCS not only to **monitor performance** but also to **guide strategic decision-making and learning**. Traditional tools like budgets and

cost systems are present but often adapted to fit the startup context—flexible, iterative, and informal in early stages.

From the narrative review, startups are seen to employ **hybrid forms of control**, combining informal practices with formal tools. This includes dashboards for tracking key metrics, project management tools for R&D, and customized indicators. *Ferreira & Otley's (2009) vision* of an expanded, context-sensitive control system is thus particularly relevant.

Empirical studies support this adaptable and multi-dimensional use of control. *Aaltola (2018)* illustrates how startups utilize MCS to accompany business model innovation, while *Piliang et al. (2025)* and *Setiyawan et al. (2024)* highlight the role of interactive systems in fostering performance through organizational dialogue, rather than command-and-control. Control becomes a tool for strategic reflection and not merely compliance.

3.2.3. Are Management Control Tools Themselves a Form of Managerial Innovation?

The combined insights from the narrative and systematic reviews offer compelling and multifaceted evidence that management control tools can be classified as managerial innovations. However, the nature of this innovation is not uniform; rather, it varies according to the way these tools are introduced, perceived, and adapted within organizations. When tools such as the Balanced Scorecard, Activity-Based Costing (ABC), or Economic Value Added (EVA) were initially developed, they represented conceptual breakthroughs in performance measurement and strategic control—radically transforming managerial paradigms. These are widely recognized in the literature as **radical innovations**, in that they introduced fundamentally new frameworks for evaluating organizational value and aligning management decisions with strategic objectives *(Kaplan & Norton, 1992; Alcouffe, 2004; Chatelain-Ponroy & Sponem, 2007)*. However, the same tools may qualify as **relative innovations** when adopted by startups or smaller firms that had never used them before. In such cases, the innovation lies not in the novelty of the tool itself, but in the novelty of its adoption within a specific organizational context. Empirical studies confirm that startups frequently implement belief and interactive control systems for the first time to respond to investor expectations or to formalize internal decision-making processes. These adoptions are often shaped by mimetic behaviors, normative influences, and external legitimacy pressures *(Setiyawan et al., 2024; Piliang et al., 2025; Abrahamson, 1996; Birkinshaw & Mol, 2006).*

Beyond adoption, the literature also highlights how startups rarely use these tools in a standardized, off-the-shelf format. Instead, they progressively adjust and reinterpret them based

on internal learning, evolving strategies, and contextual constraints. This process of **incremental innovation** is especially evident in the use of dashboards and budgeting tools, which are customized to match the firm's agility and entrepreneurial culture *(Aaltola, 2018; Duréndez et al., 2023)*. These tools gain new meanings and uses through strategic experimentation, reflecting a high degree of interpretive flexibility *(Akrich et al., 1988; Ansari et al., 2010)*. Thus, management control tools are not merely adopted—they are transformed, hybridized, and embedded within the entrepreneurial process, confirming their status as dynamic and evolving forms of managerial innovation.

Table N°2*: Management Control Tools as Forms of Managerial Innovation: Typology and Evidence*

Type of Managerial Innovation	Definition	How Management Control Tools Qualify	from Non-Startup Literature	Startup-Focused Literature
Radical (or Absolute)	A major break from existing management practices introducing a fundamentally new logic or system.	Tools such as the Balanced Scorecard (BSC), ABC, and EVA fundamentally reshaped how firms conceptualize performance and value creation.	- BSC: *Kaplan & Norton (1992)* - ABC: *Alcouffe (2004)* - EVA: *Chatelain-Ponroy & Sponem (2007)*	**Rare in startups**; sometimes adopted symbolically to gain legitimacy under investor or institutional pressure. *(Wright et al. (2012)*; *Meyer & Rowan (1977))*
Relative	An existing tool adopted by a firm for the first time, perceived as new internally though widely used elsewhere.	Startups adopt tools such as ABC or interactive control systems for the first time to formalize their practices and meet stakeholder expectations.	- ABC Adoption: Abrahamson (1996*)*; *Alcouffe et al. (2003)* - Institutional drivers: *Birkinshaw & Mol (2006)*; *Damanpour (2014)*	- Belief and interactive control systems adopted as new tools *(Setiyawan et al. (2024)*; *Piliang et al. (2025))* - Driven by benchmarking, external pressure, and organizational learning needs.
Incremental	A progressive adaptation or customization of existing tools based on organizational needs, context, or learning.	Tools are rarely applied in their standard form. Firms modify dashboards, budgets, and KPIs to align with their agile structures and evolving strategies.	- Tool adaptation: *Akrich et al. (1988)*; *Carton et al. (2006)* - Interpretive flexibility: *Ansari et al. (2010)*	- Custom dashboards and budget models in iterative adaptation processes *Aaltola (2018)*; *Duréndez et al. (2023)* - Reflect internal experimentation and responsiveness to uncertainty.

Source: Authors

Conclusion

This study set out to examine whether management control tools can be considered as managerial innovations in the context of startups. By combining a narrative review of theoretical contributions with a mini-systematic review of empirical studies, the research offers a dual perspective that bridges conceptual understanding with evidence-based insights. The findings reveal that management control tools are not merely instruments of oversight, but dynamic and context-sensitive mechanisms that can serve as radical, relative, or incremental innovations depending on their novelty, application, and degree of customization.

The originality of this research lies in its redefinition of management control tools as levers of innovation rather than constraints on agility. This reframing is particularly relevant for startups, which must constantly balance the need for creativity with demands for structure, accountability, and growth legitimacy. The study thus contributes to both the literature on managerial innovation and the evolving field of entrepreneurship studies, by highlighting how managerial tools evolve through hybridization, learning, and adaptation in response to internal and external forces.

From a **managerial perspective**, these insights can help startup founders and decision-makers rethink how they introduce control systems—not as rigid frameworks, but as flexible support mechanisms that can align strategic objectives, enhance coordination, and build legitimacy with stakeholders. Understanding the innovative potential of such tools may improve how startups manage their growth trajectories and operationalize learning.

However, the study also faces several **limitations**. The empirical foundation of the systematic review remains limited in scope, due to the small number of peer-reviewed studies directly addressing this intersection. Moreover, the exclusive focus on startups excludes comparative insights from other types of organizations, such as SMEs or scale-ups, that may face similar innovation challenges. Additionally, this research does not fully address issues of resistance or failure in implementing control tools—factors that are crucial for assessing the boundaries and unintended effects of managerial innovation.

Future research could explore these gaps by broadening the empirical base across industries and geographical settings, and by adopting **longitudinal research designs** to capture how control systems evolve over time. Comparative studies across organizational life cycle stages could also enrich understanding of how innovation and control co-develop. Moreover, investigating the **interplay between management control and other innovation forms**—technological, social, or strategic—could offer a more holistic view of innovation ecosystems

in entrepreneurial contexts. Finally, a promising avenue lies in examining how factors such as **founder cognition, team dynamics, investor expectations**, and cultural context influence the adoption, transformation, or rejection of control tools as managerial innovations.

In sum, this research contributes to a deeper understanding of how startups navigate the paradox of structure and flexibility by repositioning control tools as evolving, strategic, and potentially innovative resources. It calls for a rethinking of managerial governance in entrepreneurial settings—not as a binary between freedom and control, but as a dynamic capability shaped by continuous learning, adaptation, and contextual responsiveness.

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APPENDICES :

Appendix A – Selection Protocol for the Systematic Review

			Exclusion criteria				
Year	**Title**	**Authors**	**Duplication**	**Document Type**	**Missing Full-Text**	**Irrelevant to the study's topic**	**Decision**
2025	**DRIVING RADICAL INNOVATION: EXTERNAL STIMULI, ORGANIZATION CULTURE AND MCS'S ROLE IN STARTUP SUCCESS MODERATED BY TECHNOLOGICAL TURBULENCE**	Piliang, A., Meutia, Bastian, E., Muchlish, M.					**Included**
2024	**Impact of strategic HR practices on innovation performance: examining the mediation of differentiation and cost-effectiveness**	Trivedi, Karishma;Srivastava, Kailash B.L			**x**	**x**	**Excluded**
2024	**Innovative Human Resource Management for SMEs**	Shuja Iqbal, Komal Khalid, and Andi Cudai Nur		**x**	**x**	**x**	**Excluded**
2024	**Impact of organisational capabilities on R&D project innovation performance of E&E manufacturing firms in Malaysia**	Asmat-Nizam Abdul-Talib; Chee Wei Keung			**x**	**x**	**Excluded**
2024	**How Does Management Control Affect New Product Development Performance? A Research Methodology with OLS and fsQCA**	Li, X., Chen, Y.-E.				**x**	**Excluded**
2024	**The effect of management control systems on business performance and innovation organizational as moderating and mediating variable**	Setiyawan, A., Ismail, T., Muchlish, M., Indriana, I.					**Included**
2024	**Effect of learning culture and management control system on innovation performance: Evidence from startup companies in Indonesia**	Bastian, E., Piliang, A., Meutia					**Included**
2023	**The influence of CEO's financial literacy on SMEs technological innovation: the mediating effects of MCS and risk-taking**	Duréndez, A., Dieguez-Soto, J., Madrid-Guijarro, A.					**Included**
2023	**Integrating Artificial Intelligence in Human Resource Management: A SmartPLS Approach for Entrepreneurial Success**	Wuisan, D.S.S., Sunardjo, R.A., Aini, Q., Yusuf, N.A., Rahardja, U.				**x**	**Excluded**

2023	**EXPLORING THE RELATIONSHIP BETWEEN ENTREPRENEURIAL ORIENTATION, INNOVATION AND FINANCIAL PERFORMANCE: THE MEDIATING ROLE OF ABSORPTIVE CAPACITY AND TECHNOLOGICAL INNOVATION CAPABILITY**	Sungthong, S., Aujirapongpan, S., Meesook, K.				**x**	**Excluded**
2023	**ENTERPRISE RISK MANAGEMENT, MANAGEMENT CONTROL SYSTEMS, AND DIGITAL BANKING TRANSFORMATION ANALYSIS ON THE EVALUATION OF SUSTAINABLE BANKING IN INDONESIAN BANKING**	Saputra, I., Murwaningsari, E., Augustine, Y.				**x**	**Excluded**
2022	**The relationship between management control systems and innovativeness in start-ups: evidence for product, business model, and ambidextrous innovation**	Christoph Endenich, Maik Lachmann, Hanna Schachel, Joanna Zajkowska			**x**		**Excluded**
2022	**Implementing industry 4.0 real-time performance management systems: the case of Schneider Electric**	Robert, M., Giuliani, P., Gurau, C.				**x**	**Excluded**
2021	**Building competencies for organizational success: Emerging research and opportunities**	Harper, D.S.		**x**	**x**	**x**	**Excluded**
2021	**Leveraging entrepreneurial ecosystems as human resource systems: A theory of meta-organizational human resource management**	Roundy, P.T., Burke-Smalley, L.			**x**	**x**	**Excluded**
2020	**Managerial characteristics and budget use in festival organizations**	Knardal, P.S., Bjørnenak, T.				**x**	**Excluded**
2020	**Innovating for competitive advantage: managerial risk-taking ability counterbalances management controls**	Varma, A., Bhalotia, K., Gambhir, K.				**x**	**Excluded**
2020	**Beyond the "good" and "evil" of stability values in organizational culture for managerial innovation: the crucial role of management controls**	Janka, M; Heinicke, X and Guenther, TW				**x**	**Excluded**
2019	**Business intelligence addressing service quality for big data analytics in public sector**	Manikam, S., Sahibudin, S., Kasinathan, V.				**x**	**Excluded**
2019	**The mediating effect of decision quality on knowledge management and firm performance for Chinese entrepreneurs: An empirical study**	Yu, H., Shang, Y., Wang, N., Ma, Z.				**x**	**Excluded**
2019	**Family management and firm performance in family SMEs: The mediating roles of management control systems and technological innovation**	Ruiz-Palomo, D., Diéguez-Soto, J., Duréndez, A., Santos, J.C.				**x**	**Excluded**
2018	**Investing in strategic development: Management control of business model and managerial innovations**	Aaltola, P					**Included**

2018	**Performing business and social innovation through accounting inscriptions: An introduction**	Busco, C and Quattrone, P				**x**	**Excluded**
2017	**Looking for leaders: 'Balancing' innovation, risk and management control systems**	Gurd, B., Helliar, C.				**x**	**Excluded**
2015	**Identification and performance management: An assessment of change-oriented behavior in public organizations**	Campbell, J.W.				**x**	**Excluded**
2015	**FAMILY FIRMS AND PROFESSIONALISATION: A SURVEY OF ITALIAN SMALL-MEDIUM ENTERPRISES**	Culasso, F; Giacosa, E; (...); Truant, E			**x**	**x**	**Excluded**
2015	**Technologies of government in public sector's networks: In search of cooperation through management control innovations**	Barretta, A and Busco, C				**x**	**Excluded**
2014	**Study on the Management Control Model of Sustainable Innovation**	Xiong, MC			**x**	**x**	**Excluded**
2013	**Controlling the control system: Performance information in the German childcare administration**	Kroll, A., Proeller, I.				**x**	**Excluded**
2011	**Evolutionary paths of performance measurement An overview of its recent development**	Srimai, S; Radford, J and Wright, C				**x**	**Excluded**
2009	**Public and private sector entrepreneurship: Similarities, differences or a combination?**	Kearney, C., Hisrich, R.D., Roche, F.				**x**	**Excluded**

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