

Rivas-Montoya, Luz

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Unravelling Managerial Knowledge Sharing in a Multi-Business Firm

Luz Rivas-Montoya 

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Abstract In single businesses, managerial knowledge plays a crucial role in delineating strategies and making competitive decisions. However, in multi-business firms (MBFs), managerial knowledge assumes an even greater significance as it not only guides competition but also shapes the management of a diverse business portfolio to realize synergies. This research aims to investigate *how managerial knowledge is shared while managing a multi-business firm?* Employing an in-depth qualitative case study from the complexity perspective, the study focuses on the top management team (TMT) of a multi-business insurance firm. Drawing on non-participant observations, interviews, and document analysis, this qualitative inquiry proposes a conceptualization of managerial knowledge within MBFs as a complex adaptive system (CAS). By doing so, the study contributes novel insights into the understanding of managerial knowledge as a CAS, thereby enriching our comprehension of how MBFs realize synergies through knowledge sharing and facilitate decentralized decision-making. This study offers significant implications for practitioners and scholars alike by deepening the understanding of the intricate dynamics inherent in managing multi-business firms and underscores the importance of knowledge sharing in realizing synergies.

Keywords Multi-business firm · Managerial Knowledge · Complex adaptive systems (CAS) · Corporate strategy

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✉ Luz Rivas-Montoya
Universidad EAFIT (EAFIT University), Carrera 49, Cl. 7 Sur #50, Medellín, Antioquia, Colombia
E-Mail: lrivasm@eafit.edu.co

1 Introduction

A multi-business firm (MBF) encompasses operations across multiple market segments, often organised into distinct divisions or business units. This concept is well-defined and well-researched, with seminal works by scholars such as Chandler (1962), Goold et al. (1994), Furrer (2016), Eisenhardt and Piezunka (2011) and Decreton et al. (2017). A multibusiness firm is the result of the diversification of a single business (Chen et al. 2019; Garg and Zhao 2018) and It is clear that, despite its corporate structure, this company comprises two or more business units (Ryu et al. 2020). A multidivisional or diversified firm is an organisational structure where activities are diversified, typically along product, brand, or geographic lines. MBF has been rationalised by various theories, including Industrial Organization, Transaction Cost, Strategic Contingency and Institutionalism, Agency, Resource Based, Information Processing, and Real Option theories. Each of these provides insights into the external and internal motivations for diversification (Furrer 2016).

These theories clearly highlight that a MBF is efficient in creating value if corporate executives are motivated and well informed and relate to Business Units (BUs) through central control, monitoring, and incentives (Eisenhardt and Piezunka 2011). It is clear that these assumptions are rooted in reductionist views. This is because they focus on efficiency, leaving out other critical aspects such as the dominant logics of the TMT, the history of multibusiness firms and the multifaceted nature of managerial knowledge. Complexity theory complements these reductionist views and provides a more nuanced understanding of multi-business firms as complex adaptive systems (CAS) comprising interconnected and semi-autonomous business units (Eisenhardt and Piezunka 2011). This viewpoint stresses the fluid nature of organisational adaptation to changing environments and the improvisational actions of BUs managers (p. 511). It highlights the need for multifaceted approaches to governance and decision-making in the absence of central coordination.

Research on multi-business firms has focused on resources, social capital, coordination, organisation, decision-making, information technology, headquarters, research and development, and knowledge. This body of literature shows a clear interest in knowledge-related aspects, including knowledge management, acquisition, sharing (Sengul and Yu 2023), sourcing (Garg and Zhao 2018), transfer (Furrer 2016), knowledge flows (Duan 2025; Reza-Zahedi et al. 2024) and knowledge leaks (Fruhworth et al. 2024). These interests are closely related to the RBV explanation about the existence of the Multibusiness firms, since synergies can be maximised by sharing knowledge (Sengul and Yu 2023; Tanriverdi 2005).

Managerial knowledge is a valuable resource for creating synergies in multibusiness firms (Tanriverdi and Venkatraman 2005), as information for managerial decision-making (Gopalakrishna and Goldsmith 2006), theories about the way things are (Ellis and Hopkinson 2010), the knowledge acquired by managers (Geisler 2007), and a capability acquired by managers performing well (Park 2010). Managerial knowledge is multifaceted and cannot be easily quantified (Fu 2012) since it includes “both tacit and explicit components” (Auffray and Fu 2015). Tanriverdi and Venkatraman’s (2005) definition of managerial knowledge is clear: it is directly related to corporate strategy. The knowledge that governs business units can also be

a source of cross-business synergy. “Managerial knowledge consists of managerial insights, experiences, and best practices of a firm” (p. 102).

However, building mainly on a resource-based view of diversification and the economic theory of complementarities, Tanriverdi and Venkatraman (2005) also define knowledge relatedness as “the extent to which a multi-business firm uses common knowledge resources across its business units” (p. 100). The authors argue that tacit knowledge “has limited potential to create significant economies of scope” (p. 100). Consequently, they focus exclusively on explicit knowledge. These authors confidently assert that managerial knowledge is a source of synergy measured among business units. They are clear that knowledge is essentially a measurable resource, creating synergies that are useful for businesses’ competitive strategies.

Existing definitions of managerial knowledge often overlook the collaborative sharing processes among agents at different organisational levels within multi-business firms. Zulfiqar and Saeed (2025) state that knowledge sharing is the process of exchanging knowledge between individuals and groups. This research explores how managerial knowledge is shared when managing a multi-business firm. It adopts the theoretical framework of complex adaptive systems.

This research uses an in-depth case study approach focused on Suramericana, a Latin American multi-business insurance firm, and it contributes to the conceptualisation of managerial knowledge as a complex adaptive system. This study integrates cognizant agents and acknowledges the shared context of multi-business firms. It revises existing definitions of managerial knowledge and relates them with multi-business firms. It also identifies emergent organisational patterns and managerial implications, enhancing decision-making decentralisation and managerial effectiveness in multi-business contexts.

This research makes a significant contribution to the field of corporate strategy in several keyways. Firstly, it strengthens Tanriverdi and Venkatraman’s (2005) conceptualisation of managerial knowledge by refining the definition to encompass not only tangible resources but also the active involvement of cognizant agents within the shared context of multi-business firms. This enhanced understanding definitively sheds light on the intricate dynamics of knowledge sharing and utilisation within complex organisational structures.

Secondly, this study introduces knowledge as a Complex Adaptive System (CAS), offering an alternative perspective that acknowledges the nonlinear interactions and emergent properties inherent in multi-business environments. This research provides a more nuanced understanding of how managerial knowledge is shared in the context of a multibusiness firm by viewing managerial knowledge through the lens of complexity theory. This sharing occurs due to the multitude of interactions among agents. These interactions are characterised by their multiplicity, multi-level nature, and non-linearity. These are typical of complex adaptive systems. These interactions occur not only vertically between corporate centres and business units, but also horizontally among various levels, such as corporate/business and cross-business units.

The managerial knowledge at the corporate level of Suramericana undoubtedly emerges from the adaptive behaviours of cognitive agents responding to numerous stimuli in their shared contexts.

Thirdly, the study advances corporate strategy theory by demonstrating how managerial knowledge conducive to decentralising decision-making are critical to effective governance within multi-business contexts. This research identifies and elucidates factors that facilitate decision-making autonomy at various levels of the organisation, revealing a distinctive organisational pattern: top management teams deliberate without making immediate decisions, empowering business unit managers to act on their contextual knowledge. As a result, it contributes to the development of more agile and responsive corporate management practices and offers clear implications for optimising meeting structures and enhancing strategic alignment across business units.

This research definitively advances theoretical understanding and offers practical insights that inform knowledge sharing to realise synergies and decision-making processes within multi-business firms.

2 Managerial Knowledge in Multibusiness Firms: Literature Review

To investigate the sharing of managerial knowledge within multi-business firms, this research commenced with an exploration of the conceptual landscape surrounding the multi-business firm concept. To this end, a systematic search was conducted using the Scopus database with the following search string: (TITLE-ABS-KEY("Multibusiness* Firm*") OR TITLE-ABS-KEY("Multidivision* Firm*")) AND (LIMIT-TO(SUBJAREA, "BUSI")) AND (LIMIT-TO(DOCTYPE, "ar") OR LIMIT-TO(DOCTYPE, "re") OR LIMIT-TO(DOCTYPE, "ch") OR LIMIT-TO(DOCTYPE, "bk")) AND (LIMIT-TO(LANGUAGE, "English") OR LIMIT-TO(LANGUAGE, "Spanish")). This search yielded 101 relevant documents, which were meticulously analyzed using Covidence. While the earliest document dates to 1972 in a Business History journal, interest in the topic gained significant traction post-1990s, with a predominant focus observed in the United States, Germany, Italy, and the United Kingdom, while research in Latin America remains limited.

Subsequently, an examination of the relationship between managerial knowledge and multi-business firms was conducted through a targeted search using the Scopus database. The search string employed was: (TITLE-ABS-KEY("Managerial knowledge") AND TITLE-ABS-KEY("multibusiness* firm*") OR TITLE-ABS-KEY("multidivision* firm*")). However, this search yielded only two articles (Tanriverdi 2005; Tanriverdi and Venkatraman 2005). Consequently, insights were gleaned from these articles and other relevant references pertaining to multi-business firms.

2.1 Multibusiness Firm

A Multibusiness firm is characterized by its operations spanning multiple market segments, often delineated into discrete divisions or business entities (Chandler 1962; Decreton et al. 2017; Furrer 2016; Goold et al. 1994). Although structured as a unified entity, it comprises two or more distinct business units within its framework (Ryu et al. 2020). Commonly termed as a multidivisional, this organizational config-

uration involves the diversification of activities, typically across product, brand, or geographical domains (Garg and Zhao 2018). Another frequently used terminology is diversified firm (Chen et al. 2019) since a multibusiness or multidivisional firm emerges from the diversification of a single business entity.

The existence of such firms is rationalized by various theories including Industrial Organization, Transaction Cost, Strategic Contingency and Institutionalism, Agency, Resource Based, Information Processing, and Real Option theories, each providing insights into the external and internal motivations for diversification (Furrer 2016). To complement these perspectives, complexity theory offers a refined perspective on multibusiness firms, portraying them as complex adaptive systems (CAS) consisting of interconnected and semi-autonomous business units (Eisenhardt and Piezunka 2011). This standpoint underscores the dynamic aspect of organizational adjustment to evolving surroundings, emphasizing “the improvisational actions of BUs managers” (p. 511), thereby accentuating the necessity for comprehensive approaches about realizing synergies through sharing knowledge, albeit without centralized coordination.

Research on multi-business firms has predominantly focused on topics such as resource allocation (Vieregger et al. 2017; Walheer and Hudik 2019), resource re-deployment (Sakhartov and Folta 2014; Sohl and Folta 2021), capital allocation (Bardolet et al. 2011, 2012), attention allocation (Hu et al. 2017; Wilson and Joseph 2015), Transfer prices (Chen et al., 2015; Dutta and Reichelstein 2010, 2021), social capital and networks (Bilhuber Galli and Müller-Stewens 2012; Bilhuber-Galli 2011; Kleinbaum and Stuart 2017), Coordination (Chen et al. 2019) and implementation (Jacqueminet 2020), Internal Organization, Performance compensation (Gartenberg and Wulf 2017), Decision Making (Kownatzki et al. 2013), Information Technology (Tanriverdi and Du 2020), Headquarters HQ (Knott 2019; Menz et al. 2015), R&D (Giannini and Guzzini 2018) and Knowledge (Karim and Williams 2012; Tanriverdi and Venkatraman 2005).

Within this body of literature, a growing interest in knowledge-related aspects has emerged, encompassing knowledge management, acquisition, sharing (Sengul and Yu 2023), sourcing (Garg and Zhao 2018), transfer (Furrer 2016), knowledge flows (Duan 2025; Reza-Zahedi et al. 2024) and knowledge leaks (Fruhworth et al. 2024). These interests are closely related to the RBV explanation about the existence of the Multibusiness firms, since synergies can be maximized by sharing knowledge (Sengul and Yu 2023; Tanriverdi 2005).

Recognizing multi-business firms as complex adaptive systems suggests that individual business units operate as distinct entities with partial interconnections, necessitating collaborative efforts to unlock synergies and create economic value. The primary challenge facing top management teams (TMTs) in multi-business firms is to capture synergies and adapt to market dynamics effectively (Eisenhardt and Galunic 2000; Furrer 2016), despite the uncertainty, volatility and ambiguity of the environment. Thus, the main challenge of a multibusiness top management team (TMT) is to capture synergies (Martin and Eisenhardt 2003; Srivastava and Prabhu 1996) and coevolve with the market.

Synergy is defined as the ability of the multi-business firm to collectively create greater economic value than each individual strategic business unit would produce

independently (Ansoff 1965; Goold and Campbell 1998; Goold and Luchs 2003). More recently, Feldman and Hernandez (2022) define synergy as a combination of two firms' assets that are more valuable together than they are separately.

2.2 Managerial Knowledge

The literature review revealed varied perspectives on the nature of managerial knowledge within organizational and managerial contexts. From an organizational standpoint, managerial knowledge is conceptualized as a source of synergy (Tanriverdi and Venkatraman 2005), a byproduct of organizational operations (Geisler 2007), or an embodiment of organizational norms and practices (Ellis and Hopkinson 2010). Conversely, from a managerial perspective, it is viewed as knowledge essential for effective decision-making (Gopalakrishna and Goldsmith 2006), a reflection of managers' sensitivity to environmental conditions (Chia and Holt 2008), and as a managerial capability (Park 2010). Scholars have also highlighted the multifaceted nature of managerial knowledge, underscoring its complexity and the challenge of quantification (Fu 2012), while recognizing its composition of both tacit and explicit elements (Auffray and Fu 2015). Table 1 provides a summary of key representative studies in this domain.

Table 1 shows that of the eight previously published studies, only four refer to organizational contexts where corporate-level strategy prevails. Three refer to multinational enterprises (MNE) (Auffray and Fu 2015; Fu 2012; Park 2010), three do not mention a special type of organization, and only one specifically considers the context of a multi-business firm (MBF) (Tanriverdi and Venkatraman 2005). Also, three of the eight studies presented in Table 1 are theoretical (Chia and Holt 2008; Geisler 2007; Gopalakrishna and Goldsmith 2006), and five offer empirical results. The latter three present findings that use quantitative methods (Fu 2012; Park 2010; Tanriverdi and Venkatraman 2005) and two approach the research qualitatively (Auffray and Fu 2015; Ellis and Hopkinson 2010).

Managerial knowledge in a multi-business firm differs from the knowledge needed to manage a single business. Attending to a single business means having a clear value creation and capture logic (Abell 1980; Osterwalder and Pigneur 2010; Osterwalder et al. 2014, 2020). A business strategy should emphasize clients, value propositions, and how to win a unique market position (Porter 1987b). By contrast, in managing a multi-business firm, a Top Management Team TMT must address business strategy, define a business portfolio, and jointly manage numerous business units (Birkinshaw et al. 2017; Campbell et al. 1995; Goold 1996; Goold and Sommers 1996; Menz et al. 2021; Porter 1987a). Notably, multi-business management is more complex than managing a single business. TMTs of multi-business firms make decisions about control, collaboration, standardization and centralization of activities, and synergies, among others (Bititci et al. 2007; Eisenhardt and Piezunka 2011; Menz et al. 2015). Of all these decisions, realizing synergies is without any doubt the main challenge for joint managers of a multi-business firm (Connell and Voola 2007; Feldman and Hernandez 2022; Goold and Campbell 1998; Karim and Kaul 2015; Tanriverdi and Venkatraman 2005; Zaheer et al. 2013).

Table 1 Studies defining Managerial Knowledge

Authors	Definitions	Methodological Aspects
Tanriverdi and Venkatraman (2005)	Managerial knowledge, by which business units are governed, can also be a source of cross-business synergy (Prahalad and Bettis 1986). Managerial knowledge consists of managerial insights, experiences, and a firm's best practices (p. 102)	Empirical, Quantitative
Gopalakrishna and Goldsmith (2006)	We focus on the calibration of managerial knowledge, meaning information relevant to managerial decision-making. We accept that this is a reductionist view of knowledge (p. 224)	Theoretical
Geisler (2007)	Knowledge acquired by managers regarding the workings of an organization: its goals, strategies, and policies, the interface between people and units, and the inherent aspects of workflow	Theoretical
Chia and Holt (2008)	Managerial knowledge is, in part, a function of managers being sensitive to the conditions by which people become certain about some things. (p. 155)	Theoretical
Ellis and Hopkinson (2010)	Managerial knowledge as theories about "the way things are," which both informs action and can be communicated to influence others. (p. 414)	Empirical, Qualitative
Park (2010)	Managerial knowledge means a capability acquired by performing well in various managerial domains. Managerial knowledge particularly helps operate the internal chain of an organization by linking corporate operations to customers and by developing key support services for organizational activities in daily routines (p. 56)	Empirical, Quantitative
Fu (2012)	Managerial knowledge is multi-faceted and cannot easily be quantified. There is little prior work on the quantitative measurement of this type of knowledge (p. 976)	Empirical, Quantitative
Auffray and Fu (2015)	Managerial knowledge includes both tacit and explicit components. On the one hand, tacit knowledge "that which we know but can tell" (Polanyi 1967) refers to subconscious mechanisms used by managers to guide their decisions [...] on the other hand, explicit knowledge consists of identifiable rules of action that are easy to translate into formal language (p. 287)	Empirical, Qualitative

The complexity inherent in managing a multi-business firm underscores the importance of this research endeavor. While Tanriverdi and Venkatraman's (2005) definition of managerial knowledge is pertinent, their focus primarily on explicit knowledge overlooks the interactive nature of knowledge sharing among multilevel agents within multi-business contexts. Consequently, this neglects the intricate processes involved in knowledge sharing between business unit managers and TMT executives responsible for competitive and corporate strategies. The significance of knowledge sharing extends beyond gaining competitive advantage in individual businesses (Ishrat and Rahman 2019) to realizing synergies within Multi-Business Firms (MBFs) (Sengul and Yu 2023; Tanriverdi 2005).

Ishrat and Rahman (2019) assert that knowledge sharing consists in two main processes: sharing what you know (knowledge contribution) and seeking knowledge from others (Knowledge collection). They identify several enablers of knowledge sharing, including social networks, shared goals, social trust, positive attitudes, subjective norms, and contextual understanding. Thus, fostering knowledge sharing within a Multi-Business Top Management Team (TMT) not only enhances synergy realization but also promotes innovation, collaboration, and efficiency by leveraging organizational learning and problem-solving capabilities.

From the above we can infer that the complexity of managing a multi-business firm which motivates this research. The central question being: When managing a multi-business firm, how is managerial knowledge shared? Given this research question, the definition of managerial knowledge provided by Tanriverdi and Venkatraman (2005) stands out.

Building mainly on a resource-based view of diversification and the economic theory of complementarities, limits knowledge view as a resource focused only in its explicit component. Therefore, the process of sharing knowledge between multilevel agents, who interact in a multi-business context, widens the knowledge view by considering both tacit and explicit components as a whole. This study definitively shows that the sharing of managerial knowledge is an interactive process with two primary purposes. Firstly, it sets out to characterise the knowledge shared in the joint management of multi-business firms. Secondly, it delves into the processes involved in sharing individual managerial knowledge between business unit managers and headquarters' TMT executives.

Knowledge sharing is the transfer of information, skills and expertise among individuals and groups (Ishrat and Rahman 2019; Zulfiqar and Saeed 2025). In the corporate world, managerial knowledge sharing is a process of building collective knowledge (Hecker 2012). The process is shaped by the cognitive foundations and individual values that members of the TMT employ during interactions in managerial meetings at headquarters. To move beyond viewing knowledge merely as a resource, this study adopts complexity theory as a lens to delve deeper into managerial knowledge. This research adopts complexity theory to reveal the components, characteristics and intricacies of the sharing process, offering a richer understanding of managerial knowledge dynamics within multi-business firms.

3 Complexity as a Theoretical Framework

The intricate interplay between knowledge (Morin 2006) and management contexts (Mintzberg 2010) necessitates a departure from reductionist perspectives. Mitchell (2009) is clear: reductionism is the tendency of modern scientists to understand wholes by dissecting their constituent parts. However, given the inherent complexity of social phenomena, anti-reductionist approaches are clear: the whole is greater than the sum of its parts (Richardson and Cilliers 2001). In this context, complexity theory emerges as a promising framework offering fresh insights and a broader understanding of the interactive dynamics and contextual nuances of knowledge. Borrillo and Kaminska-Labbé (2011) previously employed complexity theory to elucidate knowledge creation dynamics within a pharmaceutical company, highlighting its applicability beyond traditional disciplinary boundaries.

Maguire et al. (2011) are clear: the application of complexity science in the field of management and organisational studies has surged significantly over the past two decades. This growing adoption clearly demonstrates the recognition of complexity theory as a valuable tool for grappling with the intricacies of organisational phenomena and knowledge dynamics in contemporary contexts. The complexity perspective provides a basis for accepting two paradoxical forms of wisdom. People can change their worlds through their interventions, but they must do so reflexively and with respect for the complexity of the system in which they are embedded. The dream of omnipotence and the nightmare of impotence in a fully knowable but deterministic world are both destroyed by complexity science, which in many ways represents an important cultural awakening.

Furthermore, Boisot (2011) definitively states that “complexity is experienced as those states that the agent’s existing knowledge cannot handle” (p. 437). This author is certain that agents act as intelligent beings who survive and prosper “on the basis of knowledge that we share as an adaptive response to the diversity of phenomena we encounter and have to adapt to” (p. 436). Complexity theory allows us to explore managerial knowledge and its sharing process, building on previous related literature.

3.1 Fundamentals of Complexity Theory

According to Cilliers (1998) and Mitchell (2009), a simple definition for complexity cannot be established. Fundamentals of complexity theory, therefore, build upon the characteristics and properties of complex systems and complex adaptive systems. As Table 2 summarizes, complex systems consist of a large number of elements that feature the actors’ interactions and dynamics.

Adopting a complex systems perspective necessitates the consideration of both agents and interactions within the system. In line with this principle, interacting agents within a complex system not only adapt to their environment but also engage in self-organization, primarily to ensure survival and evolutionary progress. This evolutionary process is inherently unpredictable and immeasurable, giving rise to emergent phenomena that defy straightforward prediction.

Table 2 Complex Systems' Characteristics. (Source: Cilliers 1998, p. 3)

	Characteristics	Implications
1	They consist of a large number of elements	"When the number is relatively small, the behavior of the elements can often be given a formal description in conventional terms. However, when the number becomes sufficiently large, conventional means not only become impractical, they also cease to assist any understanding of the system."
2	The elements must interact, and this interaction must be dynamic	Interacting dynamically means that complex systems change over time
3	The interaction is fairly rich	The behaviour of the system is not determined by the exact number of interactions associated with specific elements. "Any element in the system influences, and is influenced by, quite a few other ones."
4	The interactions are non-linear and usually have a short range	"A large system of linear elements can usually be collapsed into an equivalent system that is very much smaller. Non-linearity also guarantees that small causes can have large results, and vice versa. It is a precondition for complexity." "Information is received primarily from immediate neighbours."
5	There are loops in the interactions	"The effect on any activity can feed back onto itself, sometimes directly, sometimes after a number of intervening stages." This feedback can be positive or negative
6	They have open systems	Complex systems are open because they interact with their environment. But sometimes it is difficult to establish the system's boundaries
7	They operate under conditions far from equilibrium	"Instead of being a characteristic of the system itself, the scope of the system is usually determined by the purpose of the <i>description</i> of the system and is thus often influenced by the position of the observer."
8	They have a history	"Not only do they evolve through time, but their past also is responsible for present behaviour"
9	Each element in the system is ignorant of the behaviour of the system as a whole	"It responds only to information that is available to it locally. This point is vitally important. If each element 'knew' what was happening to the system as a whole, all of the complexity would have to be present in <i>that element</i> " "Complexity is the result of a rich interaction of simple elements that only respond to the limited information each of them are presented with. When we look at the behaviour of a complex system as a whole, our focus shifts from the individual element in the system to the complex structure of the system. The complexity emerges because of patterns of interaction between the elements."

Complex systems exhibit several common properties, as outlined by Mitchell (2009), including "complex collective behaviour," "signalling and information processing," and "adaptation." "Complex collective behaviour" entails the collective actions of numerous components or networks following simple rules, resulting in intricate, dynamic, and unpredictable patterns of behaviour (Mitchell 2009, p. 312). "Signalling and information processing" characterize the capacity of complex systems to generate and utilize information and signals from both internal and external environments. This process enables the system to respond dynamically to changing circumstances and stimuli. "Adaptation" refers to the learning and evolutionary mechanisms employed by complex systems to navigate their environment, ensuring

survival and growth. Consequently, systems exhibiting organized behaviour without centralized control are often referred to as self-organizing (Mitchell 2009, p. 31).

A complex adaptive system, a foundational concept within the theory of complexity, offers a robust framework for conceptualizing the sharing of managerial knowledge within a multi-business firm. This framework complements the Resource-Based View (RBV) by emphasizing the significance of interactions among agents. Viewing knowledge as a complex adaptive system enables us to discern the intricate dynamics of the subject-agent/object relationship within a shared context.

In essence, a complex adaptive system perspective illuminates how knowledge sharing is not merely a linear process but rather a dynamic and emergent phenomenon shaped by the interactions among diverse agents within the organization. This perspective acknowledges the non-linear and unpredictable nature of knowledge sharing processes, highlighting the role of feedback loops, self-organization, and adaptation in shaping the collective knowledge dynamics within the multi-business firm. Moreover, it underscores the importance of considering the contextual factors and environmental influences that shape knowledge sharing behaviours and outcomes.

By adopting a complex adaptive system lens, researchers can gain deeper insights into the complex interplay of factors that influence managerial knowledge sharing in multi-business firms, ultimately contributing to a more nuanced understanding of how knowledge is created, disseminated, and utilized within organizational contexts.

3.2 Managerial Knowledge as a Complex Adaptive System (CAS)

Boisot (2011) presents a comprehensive definition of knowledge as a complex adaptive system, emphasizing the pivotal role of agents within this framework. He characterizes knowledge as a 'system of action,' portraying it as a dynamic and living entity that responds to stimuli from its environment. Boisot and Canals (2004) advocate for a clear distinction between data, information, and knowledge, illustrating how agents interact with their environment to process and adapt information.

According to their model, agents employ perceptual filters to register incoming data, while conceptual filters facilitate the conversion of data into information. These filters, shaped by prior knowledge and cognitive and affective expectations, play a crucial role in shaping an agent's understanding and response to its environment. Importantly, data inherently carries implicit information that can alter an agent's expectations or state of knowledge, influencing its actions and adaptive behaviours.

By elucidating the intricate processes through which agents interact with and adapt to their environment, Boisot's framework offers valuable insights into the dynamics of managerial knowledge as a complex adaptive system. It underscores the active role of agents in shaping and responding to knowledge stimuli, highlighting the iterative and adaptive nature of knowledge acquisition and utilization within organizational contexts.

From the complexity theory perspective, the relationship between a cognizant agent, a cognizable object, and a shared context characterizes the notion of knowledge as a complex adaptive system. It represents the way in which knowledge is shared through relationships between an agent and other cognizant agents who have

Table 3 Knowledge as a Complex Adaptive System

Characteristics/Properties	Knowledge as Complex, Adaptive System (KCAS)
Agents or interacting elements	Subject(s)/Object/World (S/O/W)
Self-organization	Learning/unlearning
Influence of history	Memory/mental schemes/patterns
Irreducibility	Inseparability in the S/O/W relationship Not divisible into parts
Adaptability	Learning/unlearning of interactions, which entails adaptation
Instability	Vulnerability in the face of uncertainty and diversity
Permeable boundaries	Open, cannot be isolated from the environment (world)

a particular vision of their world and thus give meaning to a cognizable object. The encounter between subject(s) and object(s) takes place in a shared and common world limited by the dimensions of space-time. The worldview of every agent is also characterized in a specific way. Thus, referring to the subject/object/world (S/O/W), this relationship indicates a plurality of interactions whose traces cannot be distinguished.

Table 3 highlights the characteristics and properties of the notion of knowledge as a complex adaptive system (KCAS).

The perspective of Knowledge as a Complex Adaptive System (CAS) presents itself as a particularly apt lens for examining managerial knowledge within the context of multi-business firms. This perspective is underscored by the literature on knowledge sharing, which emphasizes the crucial role of social, cultural, and contextual factors in leveraging knowledge effectively (Ishrat and Rahman 2019). Moreover, a CAS perspective acknowledges the organization's susceptibility to change, instability, and adaptability, all of which are shaped by its historical trajectory (Anderson 1999; Axelrod and Cohen 2000; Gell-Mann 1994; Holland 1992).

Within a CAS framework, the life history of each agent, coupled with broader historical influences such as geographical, political, economic, social, and cultural factors (Ishrat and Rahman 2019), profoundly shapes their present and future knowledge. History, therefore, serves as a repository of experiences that imprint mental schemas, behavioral patterns, values, and perceptions, collectively shaping an agent's worldview (Anderson 1999; Axelrod and Cohen 2000; Gell-Mann 1994; Holland 1992).

Boisot's conceptualization of knowledge dynamics further aligns with the CAS perspective, illustrating knowledge as a system comprising stimuli and agents whose interactions generate data and information. These inputs, processed through the mental maps and values of agents, trigger adaptive responses essential for survival and growth (Boisot 2005, 2011; Boisot and Canals 2004). Thus, managerial knowledge within multi-business firms emerges as a complex adaptive system, characterized by a plethora of stimuli perceived by diverse agents, and interconnected in non-linear ways. Continuous interactions among agents give rise to a diversity of cognitive maps, life histories, and behavioral patterns, enabling adaptive responses to the uncertainties and variations within their environments.

The CAS perspective seamlessly integrates agents' learning processes, mental schemas, and management styles, as well as their tacit knowledge. Therefore, in this research, the exploration of managerial knowledge and its dynamics is approached from a CAS standpoint, offering a comprehensive framework to understand the complexities of knowledge management within multi-business firms.

4 Method

To address the research question of *how managerial knowledge is shared while managing a multi-business firm?* an in-depth qualitative case study from the complexity perspective (Anderson et al. 2005) is undertaken. By considering that "Complexity science suggests that important insights can be gleaned by studying the behaviour that occurs at and across the boundaries that define the case" (Anderson et al. 2005, p. 674), this study focuses on interactions and interdependencies between agents and other elements of the system more than on the elements themselves.

To illustrate the conceptual argument about managerial knowledge as a complex adaptive system, I selected an in-depth case study (Siggelkow 2007). More specifically, to show how managing multibusiness firms requires addressing multiple interactions in a non-reductionist way. An in-depth case study from a complex perspective has the advantage of allowing for a detailed examination of the regularities and irregularities that arise in relation to the object of study. The disadvantage is the limitation in comparing with similar situations in other organizations.

The unit of analysis in this study was corporate management meetings where the Top Management Team TMT interacted with other organisational bodies. I followed a purposeful sampling for a single significant case (Patton 2015). At the outset, all members of the TMT were selected, i.e. the CEO and his corporate vice-presidents. Subsequently, representative participants from the bodies with which the team interacted were also invited to participate.

The research process comprises three stages of fieldwork: exploration, focalization, and deepening. Following the recommendations of Anderson et al. (2005), Suramericana, an insurance multi-business firm—is characterized as a CAS. A cognizant agent and a cognizable object of managerial knowledge are first described. After that, stimuli coming from the firm's multi-business character and from top management's adaptive responses are considered relevant for jointly creating value and therefore are highlighted.

The selection of interviewees in the study was based on three criteria: 1. They were involved in the strategic management of the multi-business company; 2. They interacted with the different business units of the multi-business company or with corporate entities such as the shared services centre; and 3. They represented different areas and hierarchical levels of the organisation.

4.1 Data Collection

Data collection techniques included non-participant observation (Blaikie 2007; Patton 2015) personal interviews (Guber 2001), and document review (Patton 2015).

For two and a half years 29 managerial meetings were observed (107h of non-participative observation), comprising top management committees, strategic planning sessions, and vice presidents' primary groups. Additionally, 23 managers and former managers, both at the corporate and business levels, were interviewed, as well as non-managerial personnel, such as analysts and project leaders (47h total). The document review consisted not only of attentively viewed information available on businesses websites but also the analysis of 25 confidential documents (475 pages total).

4.2 Suramericana: a Multi-business Research Context

Suramericana is Latin American multi-business insurance and social security firm headquartered in Medellín, Colombia. Founded more than 75 years ago, in 2015 it was owned by Grupo SURA (Grupo de Inversiones Suramericana) and is comprised of more than ten business units. The parent company holds the general insurance and life insurance businesses, and subsidiary businesses include professional risk management, health promotion, and health services. Suramericana employs more than 20,000 people and competes in various Latin American countries, such as Colombia, Mexico, El Salvador, the Dominican Republic, Panama, Peru, and Brazil. Suramericana fulfils three criteria: 1) it has been a multi-business since its inception; 2) it employs professional managers, not family owners; and 3) it supports academic research by allowing non-participant observations of its managerial meetings as well as interviews with its management team, former CEOs, and other employees. Suramericana also allowed access to all document review information requested by this study's main researcher.

4.3 Data Analysis

Different phases of the research are explained in Table 4, including inputs, research activity, research processes, and outputs achieved for each phase. Two complementary techniques are combined for data processing and analysis: codification (Strauss and Corbin 2002), and boundary games as a conversation analysis technique (Velez-Castiblanco 2012; Velez-Castiblanco et al. 2016).

From the codification process it was possible to confirm that Suramericana is a multi-business firm; for Suramericana TMT synergy was one of the major concerns, but there were tensions about how to realize potential synergies. The codification process findings were complemented by Boundary Games (BG) (Velez-Castiblanco et al. 2016) as an analytical tool, which facilitated the holistic categorization of conversational interactions during managerial meetings among TMT members. BG were also used to describe how a meeting's participants interact initially about an established boundary (Velez-Castiblanco et al. 2016, 2018). A boundary is defined as the difference between what is and what is not relevant to a problematic situation (Annex illustrates, describes, and explains how each boundary game affects a boundary). Conversational analyses of boundary games identified the most relevant stimuli as well as some adaptive responses from agents or the top management team, and more importantly they allowed identifying TMT's interaction patterns.

Table 4 Data Analysis Process

Phase	Inputs	Research Activity	Research Process	Output
I. Database organization	Non-participant observation notes Documents	Codification by participant role and level	Hermeneutic unit creation in Atlas-ti software	120 primary documents
	–	Word file editing	Document family creation	12 document families
	–	Audio codification and transcription, vignette selection	Family creation by participant role	Corporate role (31), corporate-business role (13), TMT (9), subordinate management team (33)
	–	Relevant document selection	Auto codification	633 codes
II. Codification	Primary documents	By participant names		
		By keywords: knowledge, management, synergy, shared services centre		
		Word identification in context, related to corporate topics	Open codification	5099 codes
		Questioning to group open codes	Axial codification	83 networks
		Highly cited and dense code identification	Selective codification	Synergy (220 codes), Knowledge (170 codes)
		Code and super-code operationalization		Synergy (43 relationships), Projects (30 relationships), CRM Program (22 relationships)

Table 4 (Continued)

Phase	Inputs	Research Activity	Research Process	Output
III. Boundary Games	List of observed managerial meetings, with corporate topics	Criteria identification to select managerial meetings for micro-analysis of TMT interactions	Atypical managerial meetings	Observational notes about the two managerial meetings selected; strategic planning consolidation meeting and a primary group session (consisting of more than 60 managers, not just the 9 TMT)
	Observational notes	Line-by-line conversation analysis	Boundary games identification	Boundary games frequency use by participants Sequence and conversation “knots” (highly interactive fragments of conversation)
	Boundary games for participants at the managerial meeting	For each manager For the meeting in general Position assumed by TMT	Characterization of patterns of TMT interactions	Interaction patterns Highly interactive moments or “knots” of conversation
	Boundary games: analysis of the two managerial meetings	Comparison between TMT interaction patterns	Managerial meetings comparison	TMT comparison of behaviours and positions
	micro-analysed	Identification of “knots” of conversation Boundary games: sequences’ identification	Knots and conversation sequence analysis	More relevant stimuli for TMT Adaptive responses to stimuli
IV. Second-Order Constraints	Stimuli and adaptive responses	Adaptive responses: recurrence identification Reinforcing relationships between adaptive responses	Identification of emergent second-order constraints	Systems of action (strategies of structures)

5 Managerial Knowledge in a Multibusiness Firm: a Case Study of Suramericana

As shown in Table 5, the managerial knowledge case study reveals three principal related components: 1) A TMT as a cognizant subject or agent, 2) Synergy as a cognizable object, and 3) SURA DNA, the genetic code of the multi-business firm studied, as the most relevant shared contextual characteristic.

5.1 The Top Management Team as a Cognizant Agent

The most relevant finding about the TMT is its interaction pattern. The TMT team interacts in managerial meetings, mainly monthly committees, annual corporate strategic consolidation meetings, trimonthly managers' meetings (primary groups), and occasional project monitoring meetings. As the Boundary Games' frequency shows in Table 6, and as validated by certain quotations in Table 5, the most characteristic TMT pattern is its deliberative and non-decision-making role. In other words, TMT members (cognizant agents) listen carefully to ideas presented by business units' managers, corporate-level executives, corporate and strategic project leaders, and other participants in managerial meetings where they interact with each other. While some arguments are *followed*, others are *challenged* with questions and then *enhanced* with new information or new connections. After debating again and again, when the arguments are solid and clear enough, the CEO, as the TMT leader, empowers the corporate-business vice presidents to make the decisions they consider best for their businesses.

As Table 6 illustrates, the most frequent games after *Setting* were *Following* and then *Challenging*, that is, games that mark the beginning of a new idea. *Following* means that TMT agents usually rephrase their colleague's ideas, and *Challenging* means that ideas are confronted. By this process, some ideas are reinforced while others are weakened.

In addition, the Boundary Games analysis shows that the TMT adopts two different positions when discussing how to realize synergies: intended and emergent. The group of agents who defend the intended view expect that the TMT provide guidelines about how to realize them. On the other hand, those who prefer the emergent view assert that business units know what synergies to realize, when to apply them, and how to collaborate to create value for clients.

A TMT interaction analysis also highlights a dominant logic from the parent insurance company present in most discussions. This can be explained by the TMT's composition: seven of the nine TMT members come from the insurance company, and only two have a background in the social security business.

Regarding a multilevel agent's interactions, this case study reveals a double-sided, vertical flow, that is, both top-down and bottom-up in corporate centre-business units. Notwithstanding, horizontal interactions are also present, such as those between vice presidents' agents, shared services centre (CSC) agents, and the TMT which interact with business units' managers and personnel from functional areas. Furthermore, non-linear interactions are also observed, specially, in interdisciplinary work teams where different business units and corporate divisions are represented. Such is the

Table 5 Representative Quotes about Managerial Knowledge in a Multibusiness firm

Elements	Codes	Representative Quotes	Sources of Data
<i>Shared Context:</i> Suramericana as a multi-business firm	Sura DNA: the influence of history	“Suramericana business culture can be perceived through the ethical commitment and the respect for others and their ideas. Many elements of Sura’s DNA are essential for people, being one of the most important a phrase used by Jorge Molina (CEO 1960–1980): ‘here we all can sleep on a feather pillow because the organization will never force someone to make a transaction or business against their conscience’. This DNA can be synthesized as what is common, such as pride and a clear prevalence of a very rigorous ethical behaviour.” [new distribution channels] “I give them the SURA DNA [...] I manage the channel for six months, then we share managerial responsibilities for another six months and at the end, I leave them to manage by themselves, but I keep close to them.” “Change is valuable, it means bringing Sura DNA to irrigate new business units.”	Interview of a former chief executive officer (CEO) of 20 years (1984–2004)
			Strategic planning meeting observations by the regional manager
			Etнологica Report (consultants) about Suramericana’s corporate culture
<i>Cognizant subject:</i> TMT	Deliberative role	“I have been in this Company for 31 years and I do not have the authority to tell a business manager what to do ... they are the ones who have to move forward this company because they know the difficulties that each business unit faces much better.” “If our CEO is going to make a big decision, he must consult it. Here you cannot give orders, no, that is not the way we work here” “I suggest that all business managers and their teams gather together during working hours, under the acceptance of their VPs, to think about synergies and get to a consensus.”	Corporate strategic planning meeting observation by the CEO (2003–2013)
			Chief financial officer (CFO) interview
			Broader primary group observation by the CEO
	Dominant logic: insurance	“Another important feature while analysing Sura Culture and its business [...] is the predominance that the Insurance company has as an ideal, that, in some way, becomes aspirational to other business units [...] But this also generates scepticism and tensions between some people”	Etнологica Report (consultants) about Suramericana’s corporate culture

Table 5 (Continued)

Elements	Codes	Representative Quotes	Sources of Data
<i>Cognizable object:</i> synergy	Synergy	“The reason why we have not realized more synergies is because everyone defends its own territory, people are territorial, and we are a company used to respond to results indicators, and these are designed for each business unit.”	CFO interview
		“It is not easy to realize synergies, for instance, in one of the business units they are not interested in doing ‘click’. They are worried about their own business and context pressures, so they do not care about working together.”	Marketing and growth: Manager interview
		“[...] Besides, to be clear, there is not going to be subsidies for some business units. That is a synergy condition. We can realize synergies, but without subsidies.”	Control VP interview
		“After four years of trying to realize synergies he [the CEO] is trying to start again with a clean slate [...]”	Organizational development manager interview

Table 6 Boundary Games Frequency

<i>TMT Role/Boundary Games</i>	<i>Setting</i>	<i>Challenging</i>	<i>Following</i>	<i>Wandering</i>	<i>Probing</i>	<i>Enhancing</i>
						
Corporate (C) 1	31	4	13	1	–	21
Corporate/Business (CB) 1	8	6	1	–	–	–
C2	1	5	3	–	–	–
C3	–	1	1	1	–	–
CB2	7	11	16	1	–	5
C4	23	21	18	–	2	4
C5	3	4	3	–	2	2
C6	3	1	2	–	–	–
Guest	13	15	16	–	–	8
Total	89	68	73	3	4	40

case for a Customer Relationship Management (CRM) program, where internal, non-linear interactions occur as well as interactions with external agents, such as consultants.

5.2 Synergy as a Cognizable Object

From the 29 meetings observed, two stand out for their highly controversial conversations. One was a corporate strategic planning consolidation meeting, and the other, eight months later, a broadened primary group meeting. In those two meetings, the common topic was synergy even though this topic was not on the agenda. But *what does synergy mean for Suramericana's cognizant agents?* Interestingly, the observations and interviews reveal that agents at different levels give different meanings to synergy. As Table 7 illustrates, agents not only understand synergy in different ways, but they also perceive 'inhibitors and triggers of synergy' in diverse manners.

TMT's cognizant agents, interacting with other multilevel agents at the multi-business firm, respond to synergy as a corporate stimulus, triggering actions such as new organizational structures that some business units could not have built as stand-alone businesses. Also, as shown in Table 8, jointly defined competitive and functional strategies help realize different types of synergies that strengthen competitive advantages.

As shown in Table 8, following their process criteria, participants classify perceived synergies as 'Back Office', 'Front Office', and 'Business', but two other processes emerge in this case: 'Up Office' (synergies stemming from corporate projects), and 'Down Office' (synergies realized due to the system of actions of business units' vice-presidency).

Table 7 Synergy as a Cognizable Object

Agent Level	Synergy Definition	Inhibitors	Triggers
Corporate	Jointly created value	Corporate success Annual bonuses for executives Absence of synergy guidelines No corporate sense Not seeing economies of scale as synergy	Synergy indicators or measures, Business units' (BU) needs Common origin of BUs Inclusion of young agents
Corporate/ Business	Common customer view	Regulation, process centralization, and standardization difficulties Different business units' financial capacities No agreement about synergy fundamentals	Integrative role of vice presidents (corporate/business) Technologies that integrate different business units' information
Business	Visiting clients together	Pressure for realizing synergy Frustrations about not realizing commercial synergy No clear rules about information responsibilities when BUs share customers	Structure for realizing synergies. Accepting that synergy is a long-term process
Functional	Collaborative work	No definition of accounting guidelines for synergy costs Aversion to synergy Not believing that it is possible to realize synergies	Commitment to realizing commercial synergies

Table 8 Realized Synergies and Organizational Structures Perceived by Participants

Process	Organizational Structures	Operational	Finance	Knowledge	Marketing
Up office	Risk: Vice presidents Organizational development office	–	–	Corporate Projects	–
Down office	Control: Vice presidents'	–	–	–	–
Back Office	Shared Services Center (CSC)	–	–	Training	–
Front Office	–	Rehabilitation Center, Risk Management Consultants, Emergency Systems, Health, Primary Attention, Home Health	–	–	SURA Brand
Business	Insurance Vice presidents Social Security Vice presidents	Clinic jointly audits Health negotiation process	Investment Table	Strategic Projects	CRM Project: SURA Client Segmentation

5.3 SURA DNA: The Most Relevant Contextual Characteristic

Multilevel agents' interactions are influenced not only by their different dominant logics but also by Suramericana's history which has left an oral tradition, expressed in memorable quotes by former CEOs. This behavioural pattern, named 'SURA DNA'—that is, the genetic code of the multi-business firm—, represents the values and dominant culture of Suramericana and guides actions and discussions. Its main perceived characteristics are ethical commitment, human talent (its most valued asset), support of arts and culture, executives' internal development and training, perfectionism, technical (not managerial) insurance knowledge, and consensual decision-making.

This case shows that sharing managerial knowledge in a multibusiness firms is relevant not only to realize synergies that have a direct impact on economic performance, but also to decentralize decision making. In a complex adaptive system, there is no need of a central tight control. In contrast, giving autonomy to the business units to make decisions related to the market, would enhance the chance to gain not only competitive advantage for each of the businesses, but also to create a corporate shared purpose that promotes collaboration between the joint managed businesses. Considering Sura's DNA, the cognizant agent's and synergy as the most relevant stimuli for a MBF, widens the understanding about how knowledge is shared in a multibusiness firm.

6 Discussion

This study contributes mainly by complementing the existing literature on managerial knowledge sharing (Ishrat and Rahman 2019; Tanriverdi and Venkatraman 2005) by illustrating how managerial knowledge is shared within a multi-business firm. The findings of this case study show that managerial knowledge within the multi-business firm Suramericana operates as a complex adaptive system. Through a thorough analysis, this study identifies ‘business diversity’ and ‘synergy’ as critical management issues driving interactions among agents at various levels. Cognitive agents, influenced by their roles, develop diverse perceptions of corporate matters, leading to a spectrum of adaptive responses that enable business units to evolve and thrive, not merely survive. These findings resonate with the characteristics of complex systems as outlined by Cilliers (1998) and Boisot’s conceptualization of knowledge dynamics (Boisot 2004, 2005, 2011). Furthermore, they complement the existing literature on knowledge sharing (Ishrat and Rahman 2019) by elucidating how managerial knowledge is shared within a multi-business firm.

To gain deeper insights into the sharing of managerial knowledge within Suramericana, this study focuses on the multitude of interactions among agents, which are characterized by their multiplicity, multi-level nature, and non-linearity, typical of complex adaptive systems. These interactions occur not only vertically between corporate centres and business units but also horizontally among various levels, such as corporate/business and cross-business units. As a result, the managerial knowledge at the corporate level of Suramericana emerges from the adaptive behaviours of cognitive agents responding to numerous stimuli in their shared contexts.

The study also uncovers the significance of Suramericana’s values and culture, collectively termed ‘SURA DNA,’ which reflects a common pattern of behaviour ingrained over generations. However, despite the presence of shared beliefs and norms, the study identifies tensions stemming from two dominant logics (Prahalad 2004; Prahalad and Bettis 1986) within the Top Management Team: insurance (parent company) and social security (subsidiaries). These tensions influence strategic decisions, with vice-presidents of the insurance and social security businesses exerting substantial influence at the corporate/business level.

In conclusion, the components, characteristics, properties, and mechanisms of managerial knowledge within Suramericana correspond to those of a complex, theoretically defined system. Additionally, the study highlights the integrative, collaborative, and relational nature of managerial knowledge creation and sharing, the presence of knowledge-rupturing silos, and the existence of feedback loops between different hierarchical levels, underscoring the intricate dynamics at play within a multi-business firm. Figure 1 illustrates how managerial knowledge is shared in a multibusiness firm.

The research findings underscore that the concept of managerial knowledge within the studied multi-business firm transcends mere resource status; it embodies the characteristics of a Complex Adaptive System (CAS). Employing the analytical or conceptual generalization typical of case studies (Yin 1994), the study conceptualizes managerial knowledge at the corporate level in a multi-business firm as a CAS. Within such a system, order emerges because of interactions among individuals at

various levels of aggregation. Unlike a basic complex system, a CAS is distinguished by its multilevel nature and aggregate behavior arising from agent interactions (Anderson 1999; Mitchell 2009).

Viewed through the lens of a CAS, managerial knowledge in a multi-business firm exhibits distinct components, characteristics, and mechanisms that define its essence at the corporate level. These elements are elaborated in Table 9, providing insight into the nuanced dynamics of managerial knowledge within the organizational context.

In the context of the studied multi-business environment, cognitive agents serve not only as recipients of new findings and improvements but also as sources of learning possibilities, constituting self-organized networks interconnected through feedback loops. Consequently, organizational changes represent the adaptation of agents to the environment and facilitate the evolution of the Complex Adaptive System (CAS). The extensive interaction among agents and their emerging aggregate behaviour leaves a historical footprint expressed through anticipatory patterns, cognitive maps, or rules, justifying the conceptualization of managerial knowledge in multi-business firms as a CAS.

Our findings illustrate that within a multi-business firm, managerial knowledge conceptualized as a CAS manifest as a recurring sharing process fostering agent co-evolution. At the corporate level, TMT agents interact with business units and divisional agents across different hierarchical levels, acknowledging business diversity and realizing synergies. These interactions reveal observable characteristics (Hambrick and Mason 1984) and dominant logics (Pralhad 2004) among agents, generating diverse adaptive responses discussed in managerial interactions. Through this discourse, a new order or system of action emerges, continuously updating the CAS through multilevel agents' adaptive responses and feedback loops. This ongoing co-evolution enables the multi-business firm to adapt despite environmental uncertainty.

Individual knowledge unfolded by agents may initially be technical or specialized, but when pooled in meetings, it adopts a collective character, possibly integrating with contributions from various business units and levels. Thus, TMT managerial knowledge in a multi-business firm is acquired through management practices across different units or divisions, evolving into a personal, tacit knowledge base when debated with other agents at various levels. This collective knowledge, conceptualized as a CAS, empowers multilevel agents as protagonists in the co-evolution of the firm, challenging the traditional view of corporate strategy and decentralizing the role to include executives beyond the corporate centre.

Moreover, the coordination of activities among distinct business units and the pursuit of synergy constitutes significant stimuli in a multi-business firm, inducing adaptive responses distinct from those in single-business firms. Consequently, interactions between levels facilitate the emergence of adaptive responses, which are reinforced through recurring discussions and feedback loops, contributing to the development of action systems or strategies that anticipate and co-evolve with the firm's trajectory.

In contrast to the managerial knowledge concept proposed by Tanriverdi and Venkatraman (2005), which focuses on managerial insights, experiences, and best practices, this research conceptualizes managerial knowledge in a multi-business

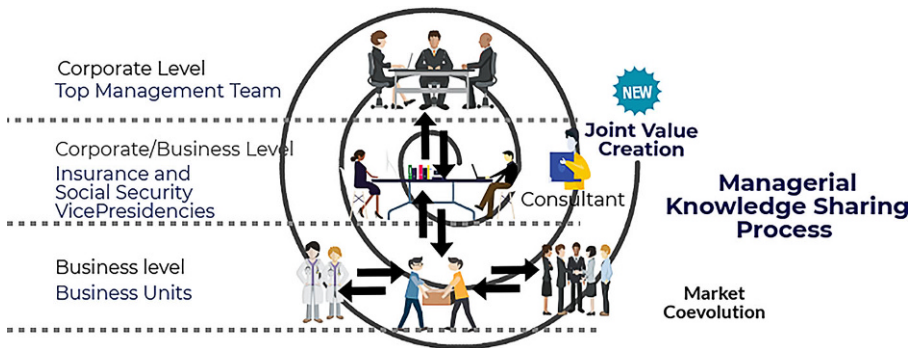


Fig. 1 Managerial Knowledge in a multibusiness firm

firm as a Complex Adaptive System (CAS). From this perspective, managerial knowledge at the corporate level can be redefined as follows:

Managerial knowledge in a multi-business firm is a CAS comprising agents engaged in multilevel interactions, responding to stimuli, generating adaptive responses, and forming systems of action. This knowledge emerges and is shared as agents adaptively respond to synergy guidelines, leading to the development of systems of action that embody strategies and structures facilitating joint value creation and co-evolution with the market.

This understanding of managerial knowledge as a CAS enriches the evolution of multi-business firms in dynamic, uncertain environments. It emphasizes the multi-dimensional nature of managerial knowledge within the context of a multi-business firm and underscores the crucial role of interactions between multilevel agents in shaping this knowledge landscape.

7 Conclusions

This research enriches the definition of managerial knowledge at the corporate level and delineates its sharing process within the specific context of a multi-business firm. The interactions among agents sustain the conceptualization of managerial knowledge as a Complex Adaptive System (CAS), primarily owing to the diversity of multilevel interactions, their nonlinearity, and the influence of historical factors, as evidenced in the management of Suramericana.

By demonstrating how specific knowledge enhances managerial decision-making criteria and decentralizes decision rights, this case study underscores the practical implications of adopting a complex adaptive system perspective on managerial knowledge. From this viewpoint, multilevel agents emerge as key protagonists in the generation and utilization of this valuable knowledge. Moreover, understanding the components, characteristics, and mechanisms of managerial knowledge as a CAS can enhance the education and mentoring of managers. The identification of historical

Table 9 Analytical generalization of Managerial Knowledge in a Multi-business Firm

Central elements	Managerial knowledge in Suramericana as CAS (Empirical findings: case-specific patterns observed in Suramericana)	Managerial knowledge as CAS (Analytical generalisation: transferable conceptual properties beyond Suramericana)
Components	Agents at the business, corporate/business, and corporate levels	Agents of various business units and divisions at the corporate and business levels
Characteristics	Collective Tacit Integrative Collaborative Relational	Collective Tacit Integrative Collaborative
Mechanisms	Rupture of “silos of knowledge” (unlearning) Integration of specialized business knowledge Feedback among three levels Emergence of adaptive responses Construction of systems of action (creation of new managerial knowledge at the corporate level) Learning concepts from distinct business units at the corporate level, and learning in the corporate sense by business units	Feedback between two levels Integration of specialized knowledge Emergence of adaptive responses Construction of systems of action Learning/unlearning

characteristics and patterns, encapsulated in SURA DNA, provides Suramericana’s agents with deeper insights into the unique identity of their organization.

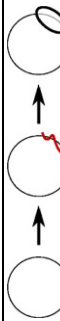
Utilizing multi-methodological lenses, this research advances the study of managerial knowledge by examining top management interactions during managerial meetings within a multi-business firm context. Grounded theory codification techniques and boundary games (conversation analyses) provided the methodological framework for studying this case from a complex systems perspective.

However, this qualitative research has limitations, primarily focusing on corporate and corporate/business agents, with business units indirectly and briefly considered. Additionally, emergent categories such as tacit, integrative, and relational characteristics of managerial knowledge warrant further exploration. Including business unit agents could yield new insights and research directions.

Future research endeavours should aim to investigate managerial knowledge in other multi-business firms or diverse contexts to validate and refine the findings of this case study. Moreover, examining managerial knowledge through strategizing lenses, encompassing not only top management but also other cognizant agents and their interactions, will enrich our understanding of praxis within multi-level systems of action. Additionally, exploring the roles of top and middle managers within complex adaptive ecosystems (Heyden et al. 2017; Robinson 2020), as they navigate continuous changes, merits further investigation, given their ability to adapt without centralized coordination and control (Grumadaité and Jucevicius 2022, p. 1). It could be fruitful for the corporate strategy and knowledge management literatures to have a better understanding about the knowledge flows related specifically to managerial knowledge, understood as a complex adaptive system. Thus, Complexity Theory continues to offer fertile ground for nurturing the field of corporate strategy.

8 Appendix

Table 10 Boundary Games

Boundary Game	Graphic Representation Initial State Operation Output	Description
Following		"Following presupposes that a boundary has already been set, at least provisionally. Participants in the discussion conform to the boundary, acknowledging and/or accepting the assumptions and value judgements that come with it. Following does not have the aim of producing big cognitive effects (the first condition for the relevance of a communication). There is no new information that enables this, although understandings of existing information may be reinforced" (p. 971)
Enhancing		"In principle, the intention behind Enhancing is very similar to Following. Both games are consistent with the established boundary. However, in contrast with Following, Enhancing is about introducing new information. This new information allows people to infer new things, but without challenging the existing implications of the boundary that have been accepted through previous games" (p. 972)
Wandering		"Wandering is making people aware that what is said is in direct contrast with the boundary that has already been set. It therefore has an indirect role in emphasizing what is pertinent and it reinforces the boundary" (p. 972)
Challenging		"The role of the different boundary games has been to reinforce the boundary in different ways. The role of Challenging is in contrast to this. Challenging is to say that what it is inside the boundary is not pertinent or is problematic in some way. In order to mount a challenge, both information within and outside of the boundary can be used" (p. 972)
Probing		"Probing happens when the boundary is not as clear as it needs to be to give confidence that a mutually shared cognitive environment exists. If the boundary is fuzzy, it is normal that someone will call attention to this in order to provide or ask for clarity. Clarification may give the participants greater confidence in the boundary, but in principle it is always possible that people will become aware of new (previously inaccessible) assumptions at some point, requiring a return to Probing or indeed it may trigger some other boundary game" (p. 972)
Setting		"If the intention in an interaction is to develop a shared cognitive environment, then the first boundary action is to try to set one. As the words 'setting a boundary' suggest, the idea is to establish some relatively firm rules for dialogue or define some conceptual space that will either contain any further boundary games or at least provide a reference point for them" (p. 971)

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Declarations

Conflict of interest L. Rivas-Montoya declares that he has no competing interests.

Ethical standards This research project does not require ethical approval.

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References

- Abell, D. 1980. *Defining the business: the starting point of strategic planning*. Prentice-Hall.
- Anderson, P. 1999. Complexity theory and organization science. *Organization Science* 10(3):216–232.
- Anderson, R., B. Crabtree, D. Steele, and R. McDaniel. 2005. Case study research: the view from complexity science. *Qualitative Health Research* 15(5):669–685.
- Ansoff, I. 1965. *Corporate strategy*. McGraw-Hill.
- Auffray, C., and X.L. Fu. 2015. Chinese MNEs and managerial knowledge transfer in Africa: the case of the construction sector in Ghana. *Journal of Chinese Economic and Business Studies* 13(4):285–310.
- Axelrod, R., and M. Cohen. 2000. *Harnessing Complexity: Organizational Implications of a Scientific Frontier*. Basic Books. kindle edition.
- Bardolet, D., C.R. Fox, and D. Lovallo. 2011. Corporate capital allocation: a behavioral perspective. *Strategic Management Journal* 32(13):1465–1483. <https://doi.org/10.1002/smj.966>.
- Bardolet, D., D. Lovallo, and R. Rumelt. 2012. The hand of corporate management in capital allocations: patterns of investment in multi and single business firms. In *Management innovation: essays in the spirit of Alfred D. Chandler*, ed. W. Lazonik, D. Teece, 348–370. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199695683.003.0012>.
- Bilhuber Galli, E., and G. Müller-Stewens. 2012. How to build social capital with leadership development: lessons from an explorative case study of A multibusiness firm. *The Leadership Quarterly* 23(1):176–201. <https://doi.org/10.1016/j.leaqua.2011.11.014>.
- Bilhuber-Galli, E. 2011. *Building social capital in a multibusiness firm: lessons from a case study*. Gabler.
- Birkinshaw, J., T. Ambos, and C. Bouquet. 2017. Boundary Spanning Activities of Corporate HQ. Executives insights from a longitudinal study. *Journal of Management Studies* 54(4):442–454.
- Bititci, U., T. Turner, D. Mackay, D. Kearney, J. Parung, and D. Walters. 2007. Managing synergy in collaborative enterprises. *Production Planning and Control* 18:454–465.
- Blaikie, N. 2007. *Approaches to social enquiry: advancing knowledge*. Wiley. <https://books.google.com.co/books?id=a8LAIqk0-nIC>.
- Boisot, M., and A. Canals. 2004. Data information and knowledge: have we got it right? *Journal of Evolutionary Economics* 14(1) 43–67 <https://doi.org/10.1007/s00191-003-0181-9>
- Boisot, M. (2005). Exploring the Information Space: a strategic perspective on information systems. In D. Rooney, G. Hearn, & A. Ninan (Eds.), *Handbook of the Knowledge Economy* (pp. 178). Edward Elgar Publishing.
- Boisot, M. 2011. Knowledge management and complexity. In *The SAGE handbook of complexity and management*, ed. P. Allen, S. Maguire, and B. McKelvey, 436–453. SAGE.

- Borzillo, S., & Kaminska-Labbé, R. (2011). Unravelling the dynamics of knowledge creation in communities of practice through complexity theory lenses. *Knowledge Management Research & Practice*, 9(4), 353–366. <https://doi.org/10.1057/kmrp.2011.13>.
- Campbell, A., M. Goold, and M. Alexander. 1995. The value of the parent company. *California Management Review* 38(1):79–97. <https://doi.org/10.2307/41165822>.
- Chandler, A. 1962. *Strategy and structure: chapters in the history of the industrial enterprise*. MIT Press.
- Chen, C.X., S. Chen, F. Pan, and Y. Wang. 2015. Determinants and consequences of transfer pricing autonomy: an empirical investigation. *Journal of Management Accounting Research* 27(2):225–259. <https://doi.org/10.2308/jmar-50927>.
- Chen, M., A. Kaul, and B. Wu. 2019. Adaptation across multiple landscapes: relatedness, complexity, and the long run effects of coordination in diversified firms. *Strategic Management Journal* 40(11):1791–1821. <https://doi.org/10.1002/smj.3060>.
- Chia, R., & Holt, R. (2008). On managerial knowledge. *Management Learning*, 39(2), 141–158. <https://doi.org/10.1177/1350507607087579>
- Cilliers, P. 1998. *Complexity and postmodernism. Understanding complex systems*. Routledge.
- Connell, J., and R. Voola. 2007. Strategic alliances and knowledge sharing: synergies or silos? *Journal of Knowledge Management* 11(3):52–66. <https://doi.org/10.1108/13673270710752108>.
- Decreton, B., H. Dellestrand, P. Kappen, and P.C. Nell. 2017. Beyond simple configurations: the dual involvement of divisional and corporate headquarters in subsidiary innovation activities in multibusiness firms. *Management International Review* 57(6):855–878. <https://doi.org/10.1007/s11575-017-0325-z>.
- Duan, R. 2025. A framework of cross-system knowledge flow: based on the investigation of sociotechnical experiments in Japan. *Technology Analysis & Strategic Management* <https://doi.org/10.1080/09537325.2025.2453441>.
- Dutta, S., and S. Reichelstein. 2010. Decentralized capacity management and internal pricing. *Review of Accounting Studies* 15(3):442–478. <https://doi.org/10.1007/s11142-010-9126-3>.
- Dutta, S., and S. Reichelstein. 2021. Capacity Rights and full-cost transfer pricing. *Management Science* 67(2):1303–1325. <https://doi.org/10.1287/mnsc.2019.3477>.
- Eisenhardt, K., and C. Galunic. 2000. Coevolving. At last, a way to make synergies work. *Harvard Business Review* 78(1):91–101.
- Eisenhardt, K., and H. Piezunka. 2011. Complexity theory and corporate strategy. In *The SAGE Handbook of Complexity and Management*, ed. P. Allen, S. Maguire, and B. McKelvey, 644. SAGE.
- Ellis, N., and G. Hopkinson. 2010. The construction of managerial knowledge in business networks: manager's theories about communication. *Industrial Marketing Management* 39(3):413–424.
- Feldman, E., and E. Hernandez. 2022. Synergy in mergers and acquisitions: typology, lifecycles, and value. *Academy of Management Review* 47(4):549–578. <https://doi.org/10.5465/amr.2018.0345>.
- Fruhworth, M., V. Pammer-Schindler, and S. Thalmann. 2024. Knowledge leaks in data-driven business models? Exploring different types of knowledge risks and protection measures. *Schmalenbach journal of business research* 76:357–396. <https://doi.org/10.1007/s41471-024-00189-z>.
- Fu, X.L. 2012. Foreign Direct Investment and managerial knowledge spillovers through the diffusion of management practices. *Journal of Management Studies* 49(5):970–999.
- Furrer, O. 2016. *Corporate level strategy. Theory and applications*, 2nd edn. Routledge.
- Garg, P., and M. Zhao. 2018. Knowledge sourcing by multidivisional firms. *Strategic Management Journal* 39:3326–3354. <https://doi.org/10.1002/smj.2956>.
- Gartenberg, C., and J. Wulf. 2017. Pay harmony? Social comparison and performance compensation in multibusiness firms. *Organization Science* 28(1):39–55. <https://doi.org/10.1287/orsc.2017.1109>.
- Geisler, E. 2007. The metrics of knowledge: mechanisms for preserving the value of managerial knowledge. *Business Horizons* 50:467–477.
- Gell-Mann, M. 1994. Complex adaptive systems. In *Complexity: metaphors, models, and reality*, Vol. 19, ed. G. Cowan, D. Pines, and D. Meltzer. Addison-Wesley.
- Giannini, V., and E. Guzzini. 2018. To centralize or not to centralize: R&D organization in diversified firms. *L'industria* 1:105–123. <https://doi.org/10.1430/90440>.
- Goold, M. 1996. Parenting strategies for multibusiness companies. 29(3):419–421. <http://ezproxy.eafit.edu.co:2132/eds/detail/detail?vid=5&sid=d4bcbae4-3a25-4adb-ad59-1e68ebf29f8d%40sessionmgr104&bdata=Jmxbmc9ZXMc2l0ZTl1ZHMtG1ZSZzY29wZT1zaXRi#AN=12352645&db=bth>.
- Goold, M., and A. Campbell. 1998. Desperately seeking synergy. *Harvard Business Review* 129–143. Article Product #: 98504-PDF-ENG. <https://hbsp.harvard.edu/product/98504-PDF-ENG?activeTab=include-materials&itemFindingMethod=#educator-copy>.

- Goold, M., and K. Luchs. 2003. Why diversify? Four decades of management thinking. In *The oxford handbook of strategy: corporate strategy*, Vol. 2, ed. D. Faulkner, A. Campbell, 18–42. Oxford University Press.
- Goold, M., and K. Sommers. 1996. *Managing the multibusiness company. Strategic issues for diversified groups*. Routledge.
- Goold, M., A. Campbell, and M. Alexander. 1994. *Corporate-level strategy. Creating Value in the multi-business company*. Wiley.
- Gopalakrishna, K., and R. Goldsmith. 2006. Calibrating managerial knowledge of customer feedback measures. *Marketing Theory* 6(2):223–243.
- Grumadaité, K., and G. Jucevicius. 2022. Strategic approaches to the development of complex organisational ecosystems: the case of lithuanian clusters. *Sustainability* 14:13. <https://doi.org/10.3390/su142315697>.
- Guber, R. 2001. *La etnografía, método, campo y reflexividad*. Editorial Norma.
- Hambrick, D., and P. Mason. 1984. Upper echelons: the organization as a reflection of its top managers. *Academy of Management Review* 9(2):193–206. <https://doi.org/10.5465/AMR.1984.4277628>.
- Hecker, A. (2012). Knowledge beyond the individual? making sense of a notion of collective knowledge in organization theory. *Organization Studies*, 33(3), 423–445. <https://doi.org/10.1177/0170840611433995>
- Heyden, M., S. Fourné, B. Koene, R. Werkman, and S. Ansari. 2017. Rethinking ‘top-down and bottom-up’ roles of top and middle managers in organizational change: implications for employee support. *Journal of Management Studies* 54(7):961–985. <https://doi.org/10.1111/joms.12258>.
- Holland, J. 1992. Complex adaptive systems. *Daedalus* 121(1):17–30.
- Hu, S., Z.L. He, D.P. Blettner, and R.A. Bettis. 2017. Conflict inside and outside: social comparisons and attention shifts in multidivisional firms. *Strategic Management Journal* 38(7):1435–1444. <https://doi.org/10.1002/smj.2556>.
- Ishrat, R., and W. Rahman. 2019. Factors of knowledge sharing: a literature review. *Sarhad Journal of Management Sciences* 5(2):2414–2336.
- Jacqueminet, A. 2020. Practice implementation within a multidivisional firm: the role of institutional pressures and value consistency. *Organization Science* 31(1):182–199. <https://doi.org/10.1287/orsc.2019.1284>.
- Karim, S., and A. Kaul. 2015. Structural recombination and innovation: unlocking intraorganizational knowledge synergy through structural change. *Organization Science* 26(2):439–455. <https://doi.org/10.1287/orsc.2014.0952>.
- Karim, S., and C.B. Williams. 2012. Structural knowledge: how executive experience with structural composition affects intrafirm mobility and unit reconfiguration. *Strategic Management Journal* 33(6):681–709. <https://doi.org/10.1002/smj.1967>.
- Kleinbaum, A.M., and T.E. Stuart. 2017. Inside the black box of the corporate staff: social networks and the implementation of corporate strategy. *Strategic Management Journal* 35(1):24–47. <https://doi.org/10.1002/smj.2090>.
- Knott, A.M. 2019. An Innovation theory of headquarters value in multibusiness firms. *Organization Science* 30(1):19–39. <https://doi.org/10.1287/orsc.2018.1231>.
- Kownatzki, M., J. Walter, S.W. Floyd, and C. Lechner. 2013. Corporate control and the speed of strategic business unit decision making. *Academy of Management Journal* 56(5):1295–1324. <https://doi.org/10.5465/amj.2011.0804>.
- Maguire, S., Allen, P., & McKelvey, B. (2011). Complexity and Management: Introducing the SAGE Handbook. In P. Allen, S. Maguire, & B. McKelvey (Eds.), *The SAGE Handbook of Complexity and Management* (pp. 1–26). SAGE Publications.
- Martin, J., and K. Eisenhardt. 2003. Cross-business synergy: recombination, modularity and the multi-business team. *Academy of Management Proceedings* 2003(1):1–6. Proceeding. <https://doi.org/10.5465/ambpp.2003.13793226>.
- Menz, M., S. Kunisch, and D. Collis. 2015. The corporate headquarters in the contemporary corporation: advancing a multimarket firm perspective. *Academy of Management Annals* 9(1):633–714. <https://doi.org/10.1080/19416520.2015.1027050>.
- Menz, M., S. Kunisch, J. Birkinshaw, D. Collis, N.J. Foss, R. Hoskisson, and J. Prescott. 2021. Corporate strategy and the theory of the firm in the digital age. *Journal of Management Studies* 1–26.
- Mintzberg, H. (2010). *Managing*. Editorial Norma.
- Mitchell, M. (2009). *Complexity a guided tour* (Kindle edition ed.). Oxford University Press.
- Morin, E. (2006). *El Método 3. El conocimiento del conocimiento* (5th ed.). Catedra.
- Osterwalder, A., and Y. Pigneur. 2010. *Business model generation*. Wiley.

- Osterwalder, A., Y. Pigneur, G. Bernarda, and A. Smith. 2014. *Value proposition design*. Wiley.
- Osterwalder, A., Y. Pigneur, F. Etienne, and A. Smith. 2020. *The invincible company*. Wiley.
- Park, B. 2010. What matters to managerial knowledge acquisition in international joint ventures? High knowledge acquirers versus low knowledge acquirers. *Asia Pacific Journal of Management* 27(1):55–79.
- Pattson, M. 2015. *Qualitative research & evaluation methods: integrating theory and practice*. SAGE.
- Polanyi, M. (1967). The tacit dimension. Doubleday.
- Porter, M. 1987a. From competitive advantage to corporate strategy. *Harvard Business Review* 21..
- Porter, M. 1987b. *Ventaja competitiva: creación y sostenimiento de un desempeño superior*, 7th edn.
- Prahalad, C. 2004. The blinders of dominant logic. *Long Range Planning* 37:171–179.
- Prahalad, C., and R.A. Bettis. 1986. The dominant logic: a new linkage between diversity and performance. *Strategic Management Journal* 7(6):485–501.
- Reza-Zahedi, M., S. Naghdi-Khanachah, and S. Papoli. 2024. Identifying and prioritizing the factors affecting the knowledge flow in high-tech industries. *Journal of Science and Technology Policy Management* 15(5):895–925. <https://doi.org/10.1108/JSTPM-01-2021-0011>.
- Richardson, K., & Cilliers, P. (2001). What is complexity science? A view from different directions. *Emergence*, 3(1), 5–23. <https://doi.org/10.1207/S15327000EM0301>
- Robinson, G. 2020. Organizations are people: reflections, obstacles and learning opportunities. *The learning organization* 27(6):541–554. <https://doi.org/10.1108/TLO-07-2020-0122>.
- Ryu, K., J. Park, and J. Park. 2020. The influence of IT Investment and IT governance on corporate performance of multibusiness firms. *The Journal of Supercomputing* 76:7820–7846. <https://doi.org/10.1007/s11227-017-1974-1>.
- Sakhartov, A., and T. Folta. 2014. Resource relatedness, redeployability and firm value. *Strategic Management Journal* 35:1781–1797.
- Sengul, M., and T. Yu. 2023. A socio-cognitive explanation of organizational grouping decisions: multidivisional firms and the formation of their divisions. *Journal of Management* <https://doi.org/10.1177/01492063231161343>.
- Siggelkow, N. (2007). Persuasion with cases studies. *Academy of Management Journal*, 50(1), 20–24. <https://doi.org/10.5465/AMJ.2007.24160882>
- Sohl, T., and T. Folta. 2021. Market exit and the potential for resource redeployment: evidence from the global retail sector. *Strategic Management Journal* 42(12):2273–2293. <https://doi.org/10.1002/smj.3285>.
- Srivastava, A., and S. Prabhu. 1996. The role of corporate synergy accomplishment in determining performance of diversification strategies. *International Journal of Technology Management* 12(1):75–84.
- Strauss, A., & Corbin, J. (2002). Bases de la investigación cualitativa. Técnicas y procedimientos para desarrollar la teoría fundamentada (E. Zimmerman, Trans.). Editorial Universidad de Antioquia.
- Tanriverdi, H. 2005. Information technology relatedness knowledge management capability, and performance of multibusiness firms. *MIS Quarterly* 29(2):311–334. <http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=17147672&lang=es&site=ehost-live>.
- Tanriverdi, H., and K. Du. 2020. Corporate strategy changes and information technology control effectiveness. *MIS Quarterly: Management Information Systems* 44(4):1573–1618. <https://doi.org/10.25300/MISQ/2020/11872>.
- Tanriverdi, H., and N. Venkatraman. 2005. Knowledge relatedness and the performance of multibusiness firms. *Strategic Management Journal* 26(2):97–119. <https://doi.org/10.1002/smj.435>.
- Velez-Castiblanco, J. (2012). Intention on Intervention: A Philosophical, Theoretical and Empirical Explanation. Victoria University of Wellington. Wellington, New Zealand. https://openaccess.wgtn.ac.nz/articles/thesis/Intention_in_Intervention_A_Philosophical_Theoretical_and_Empirical_Exploration/16998811/1/files/31446391.pdf
- Velez-Castiblanco, J., J. Brocklesby, and G. Midgley. 2016. Boundary Games: how teams of OR practitioners explore the boundaries of intervention. *European Journal of Operational Research* 249(3):968–982. <https://doi.org/10.1016/j.ejor.2015.08.006>.
- Velez-Castiblanco, J., D. Londoño, and O. Naranjo-Rivera. 2018. The structure of problem structuring conversations: a boundary games approach. *Group Decision and Negotiation* 27(5):853–884. <https://doi.org/10.1007/s10726-018-9588-4>.
- Vieregger, C., E.C. Larson, and P.C. Anderson. 2017. Top management team structure and resource reallocation within the multibusiness firm. *Journal of Management* 43(8):2497–2525. <https://doi.org/10.1177/0149206316678452>.

- Walheer, B., and M. Hudik. 2019. Reallocation of resources in multidivisional firms: a non parametric approach. *International Journal of Production Economics* 214:196–205. <https://doi.org/10.1016/j.ijpe.2019.04.020>.
- Wilson, A.J., and J. Joseph. 2015. Organizational attention and technological search in the multibusiness firm: Motorola from 1974 to 1997. *Advances in Strategic Management* 32:407–435. <https://doi.org/10.1108/S0742-332220150000032013>.
- Yin, R. (1994). Case Study Research. Design and Methods (2nd ed.). Sage Publications.
- Zaheer, A., X. Castaner, and D. Souder. 2013. Synergy Sources, Target Autonomy, and Integration in Acquisitions. *Journal of Management* 39(3):604–632. <https://doi.org/10.1177/0149206311403152>.
- Zulfiqar, S., & Saeed, S. (2025). How corporate mindfulness leads to organizational agility? Exploring the roles of employee knowledge sharing and resilience. *Journal of Organizational Change Management*, 38(3), 644–663. <https://doi.org/10.1108/JOCM-04-2023-0104>

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