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EDITORIAL

Bridging Managerial Control, Technological Innovation, and Operational Realities in Contemporary Organizations

I am pleased to present Volume 12, Issue 1 (August 2026) of the European Accounting and Management Review (EAMR). This issue brings together five contributions that examine how organisations respond to changing managerial, technological, financial, and human challenges. Taken together, the articles illustrate the continuing relevance of accounting and management research for understanding how organisations design control systems, interpret information, and make decisions in increasingly complex environments.

The issue opens with the study "Innovating Management Control Systems through a Dialectical Triad: A Social Construction Perspective on Family Business Succession" by Cristina Hillen and Carlos Eduardo Facin Lavarda. Drawing on a qualitative case study and the social-construction processes of externalisation, objectivation, and internalisation, the article examines how family-business succession can foster innovation in management control systems. It shows how generational change may reshape administrative structures and routines through the interaction between incumbent and successor perspectives.

In "Scientific reflection vs professional practice: epistemological tensions in AI auditing literature (2019–2024)," Laura Marina Rodríguez-Crespo and Paloma Merello analyse the literature on artificial intelligence in auditing through a systematic review and Bourdieusian content analysis. Their contribution highlights tensions between academic reflection and professional practice, particularly in relation to technical possibilities, regulation, accountability, and the operational conditions required for the use of AI in auditing.

The third article, "Sporting Success and Accounting Profitability in Professional Football: Evidence from a Panel Data Model," by Javier Ayuso-Estellés, addresses the relationship between sporting performance and accounting profitability in professional football. By applying panel-data analysis to clubs competing in Spanish professional football, the study contributes evidence on the financial implications of sporting outcomes and on the economic sustainability of organisations operating in this distinctive industry.

The issue then turns to the changing conditions of work. In “Effects of Work–Family Conflict and Work Anxiety on Self-Efficacy and Task Performance: The Role of Emotional Intelligence in Remote e-Working,” Cristiane Aparecida da Silva, Fabricia Silva da Rosa, and David Naranjo-Gil investigate the relationships between work–family conflict, work-related anxiety, self-efficacy, task performance, and emotional intelligence in remote e-working. The article brings attention to the human and organisational dimensions of remote work and to the role of emotional resources in supporting performance.

Finally, “Analysis of the Cost Management System in an Artisanal Microbrewery: An Activity-Based Costing Proposal” by Mathius Andunce-Gandarillas presents an applied case study of cost management in an artisanal microbrewery. The article diagnoses the limitations of informal cost-management practices and develops an Activity-Based Costing proposal adapted to the operational context of a microenterprise. It underlines that the relevance of more structured costing systems may arise from operational complexity and product diversity, rather than organisational size alone.

We hope that the research published in this issue will be useful to scholars, practitioners, and students interested in management control, auditing, financial performance, organisational behaviour, and cost management. The diversity of settings and methodological approaches represented in Volume 12, Issue 1 reflects EAMR’s commitment to rigorous research that engages with contemporary organisational realities.

Guillermo Mateu-Bartolomé
Editor-in-Chief
On behalf of the Editorial Team

EAMR

EUROPEAN ACCOUNTING AND MANAGEMENT REVIEW

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Innovating Management Control Systems through a Dialectical Triad: A Social Construction Perspective on Family Business Succession

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ABSTRACT

We analyze how the processes of externalization, objectification, and internalization sustain the social construction of innovation in the instruments of the Management Control System (MCS) during the succession process in a Brazilian family firm operating in the food sector. We draw upon the dialectical perspective of the Social Construction of Reality (SCR) and employ a single-case study. Our findings reveal that the successor with formal and managerial knowledge acted as a catalyst for administrative innovations, promoting the formalization, professionalization, and legitimization of management practices. The dialectical cycle of the SCR highlighted the interdependent phases: (i) externalization of the successor's new managerial vision; (ii) objectification through the institutionalization of instruments such as strategic planning, budgeting, and financial indicators; and (iii) internalization that fostered the acceptance and routinization of these instruments among both family and non-family managers. The succession process proved to be a window of opportunity for innovations within the MCS, strengthening governance and ensuring the continuity of the family firm's innovation culture. The results contribute to the international literature by positioning the MCS as a symbolic mediator between generations and by emphasizing the roles of formal knowledge and social legitimacy in transforming the MCS.

KEYWORDS

Social Construction of Reality; Succession; Family Firms; Management Control Systems; Administrative Innovation

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1. Introduction

Succession can offer an opportunity to preserve and enhance the innovative capacity of family firms. It can also serve as a critical moment of strategic and symbolic renewal, rather than just a time to "preserve and expand," which is a more common academic phrase (Baltazar et al., 2023; Cesaroni et al., 2021; Capella et al., 2024; Dorsch et al., 2023; Ge & Campopiano, 2022; Ward, 1987). This process involves a transfer of power and a shift in organizational roles. It prompts the restructuring and renegotiation of the firm's social reality (Berger & Luckmann, 1966; Cisneros et al., 2022). Succession may disrupt established practices and stimulate innovation, reinforcing the long-term path of the family business (Frezatti et al., 2023; Shirokova et al., 2025).

Second-generation successors, when assuming leadership, tend to promote transformations that go beyond products and processes, encompassing managerial, cultural, and symbolic dimensions of the organization (Baltazar et al., 2023; Capella et al., 2024; Cesaroni et al., 2021; Zybura et al., 2021). These changes may craft the successor as an agent of change and catalyst for innovation, responsible for proposing, legitimizing, and institutionalizing new practices (Baltazar et al., 2023; Capella et al., 2024; Chen et al., 2025; Zybura et al., 2021).

Unlike other strands of New Institutional Sociology (NIS), such as Tolbert and Zucker (1999), which emphasize how innovation stabilizes and spreads in organizational fields, the SCR treats innovation as emerging from daily interactions and shared meanings. Tolbert and Zucker (1999) focus on how new practices become institutionalized. Berger and Luckmann (1966), in contrast, highlight the micro-social and symbolic processes that

come before and support institutionalization. The new generation thus drives innovation and symbolic change in firms by reinterpreting inherited values and practices (Cesaroni et al., 2021; Flen Rossi & Rojas-Vallejos, 2024; Liu, 2022; Zybura et al., 2021).

We argue that the SCR provides a way to explain how managerial control practices are socially constructed as innovations during succession. The SCR sees innovation as arising from everyday interactions and shared meaning among organizational actors (Berger & Luckmann, 1966). It emphasizes the dialectical processes of externalization, objectification, and internalization. Through these, meanings linked to the Management Control System (MCS) instruments are produced, made tangible, and adopted by organizational members. This view helps us understand how beliefs, values, and control practices are actively reconstructed during succession, rather than merely maintained as pre-existing institutional forms.

In this context, the successor is a transformative agent for MCS technologies. Succession changes authority, legitimacy, and decision-making structures in family firms (Cesaroni et al., 2021; Cesaroni & Sentuti, 2019; Frezatti et al., 2022; Leotta et al., 2017, 2023). Innovations in MCS instruments qualify as administrative innovations when they are new to the organization and depart from prior management logic, even if they are used elsewhere (Sulaiman & Mitchell, 2005; Wongsansukcharoen & Thaweepaiboonwong, 2023).

According to Sulaiman and Mitchell's (2005) taxonomy, such changes may involve additions, modifications, or reconfigurations of control instruments and information outputs. From a SCR perspective, these innovations become organizational realities as they are externalized through the successor's initiatives, objectified in formal systems and routines, and internalized by organizational members as legitimate forms of management and control (Berger & Luckmann, 1966).

Although MCS change may also be influenced by organizational growth, market dynamics, or external advisory support, prior research consistently identifies succession as a critical mechanism of organizational change in family firms, as it enables the reconstruction of meanings, power relations, and legitimacy structures (Leotta, Rizza & Ruggeri, 2017; Cesaroni et al., 2021; Capella et al., 2024). Accordingly, this study understands succession as the primary social mechanism through which administrative innovation in the MCS is constructed, legitimized, and sustained.

MCS often combines traditional and contemporary instruments, reflecting varying levels of sophistication and openness to innovation (Barros & Ferreira, 2023; Chenhall & Langfield-Smith, 1998). Despite advances in research on MCS and innovation, important gaps remain regarding how these instruments are socially reconstructed during family business succession (Amato, Broccardo & Tenucci, 2024; De Massis et al., 2015; Frezatti et al., 2023; Thakur & Sinha, 2024).

Existing studies have addressed the interactions among MCS, innovation, and succession in a fragmented manner, often treating each dimension in isolation (Capella et al., 2024; Cesaroni et al., 2021; Einhorn, Heinicke & Guenther, 2021; Leotta, Rizza & Ruggeri, 2023). Because of this fragmentation, a theoretical gap remains in understanding the full dialectical cycle of processes that sustain the social construction of innovation in MCS instruments throughout family succession. Addressing this gap is central to our study.

To address this gap, we adopt the SCR dialectical perspective (Berger & Luckmann, 1966). Accordingly, the research question is: How do the dialectical processes of externalization, objectification, and internalization shape the social construction of innovation in MCS instruments during a family firm's succession process? From this perspective, changes in the MCS become innovation, that is, a socially constructed reality, as they are externalized by the successor's actions, subsequently objectified in formal instruments, routines, and systems, and finally internalized and reproduced by the organization's members.

The contributions of this study are threefold: (i) it offers an empirical analysis of the SCR phenomenon, showing how externalization, objectification, and internalization promote legitimacy for both the new MCS and the successor’s leadership; (ii) it positions succession as a catalytic mechanism interacting with organizational and individual factors such as formal knowledge and symbolic capital (Golden, 1992); and (iii) offers a methodological contribution by employing Discursive Textual Analysis (DTA) to interpret the temporality and dialectics of the SCR processes (Moraes, 2003; Moraes & Galiazzi, 2006).

Finally, this study broadens the international debate on management accounting by proposing a theoretical framework that integrates the SCR and management control, and illustrates how the MCS functions as a symbolic and cognitive mediator of organizational change in family contexts. This approach contributes to contemporary discussions of

administrative innovation, legitimacy, and professionalization, thereby reinforcing the explanatory potential of the SCR in the international management accounting literature.

2. Research Methods

To achieve the research objective, we conducted a qualitative interpretive study using a single-case design. The selected firm was chosen based on field accessibility, a necessary condition for conducting in-depth, qualitative, interpretive research (Stake, 1995; Lincoln & Guba, 1985). This choice proved methodologically appropriate, as the organization, a large Brazilian food manufacturing firm employing approximately 150 workers and reporting annual revenues of around BRL 550 million, exhibited characteristics relevant to the phenomenon under investigation, particularly as a family firm undergoing intergenerational succession, a context recognized as analytically fertile, albeit not exceptional, for qualitative research on family businesses (De Massis & Kotlar, 2014).

From an interpretive case study perspective, the case is understood as instrumental, as it enables the examination of how succession, management control systems, and organizational innovation are articulated within a real organizational context (Stake, 1995). Accordingly, the study's contribution lies in the transferability of its findings rather than in statistical generalization (Lincoln & Guba, 1985).

To ensure rigorous case delimitation, the selection considered specific criteria: (i) being a family firm; (ii) undergoing a succession process; (iii) showing active family involvement in management; (iv) having an established Management Control System (MCS); and (v) displaying recent innovations associated with the succession process.

The first contact with the company occurred in November 2018 to verify the case's theoretical relevance. Once confirmed, a Letter of Introduction was approved by the President. Data collection took place between June and September 2019 through interviews, observations, and document analysis. Contextual perceptions were recorded in a field diary, enriching the textual corpus for analysis (approved by the Research Ethics Committee for Human Subjects).

During fieldwork, informal daily interactions were maintained with various employees, including those at the security gate, reception, and product store. Their perceptions and comments were recorded in a field diary, enriching contextual understanding. The interviews, observations, and documents formed the empirical textual corpus, and all data

were treated as text, consistent with the Discursive Textual Analysis (DTA) epistemological positioning (Moraes, 2003; Moraes & Galiazzi, 2006). In this sense, participants' accounts were analyzed as discursive constructions and situated interpretations of organizational reality, and were clearly distinguished throughout the analysis from the theoretical inferences developed by the researchers.

The interviewees were selected based on two criteria: (i) being a member of the owning family who was actively involved in management, or (ii) being a non-family manager occupying a relevant role in organizational decision-making. Table 1 presents participants' profiles, summarizing their main characteristics.

Table 1

List Of Interviewees

Interviewee	Higher Education	Age (Years)	Time In The Company (Years)	Time In The Position (Years)
Executive director (heir)	Food Engineering	40	18	8
Founder (partner) – unformalized role	Civil Engineering	63	29	29
Financial/Administrative Manager	Economics	42	25	10
Quality manager	Food Engineering	37	15	7
Human resources manager	Pedagogy	58	22	10
Accountant	Accounting sciences	40	14	10
Production manager	Administration	38	21	5
Logistics and supply manager	Administration	33	22	6
Sales manager	Accounting sciences	41	21	8
President (founder)	Chemical engineering	69	29	29
T&D Coordinator	Pedagogy	43	7	7

All interviews were conducted on the company's premises during regular working hours, and each session was scheduled in advance. Before each interview, participants received the Case Study Protocol and the Informed Consent Form, which granted formal authorization for audio recording and data use. In total, the interviews amounted to 690 minutes of recorded material.

In addition to the interviews, documentary sources were analyzed to deepen the understanding of the company's trajectory, symbolic context, and public discourse surrounding succession and innovation. These sources included the corporate website,

regional and national magazine features, publications from the local business association, and materials from the consulting firm involved, as summarized in Table 2.

Table 2

Documentary Sources

Documentary Source	Evidence Collected / Analytical Purpose
Company website	Provided an overview of the company's history, initial understanding of the manufacturing field, product lines, vision, mission, and values, as well as contact information and published news. Highlighted the firm's social and environmental commitments, evidencing aspects of its organizational culture.
Regional and national magazine articles	Described the company's history and growth trajectory, emphasizing milestones in its development and public image.
Publications from the local Business Association	Presented the roles of the founder and the successor as leaders within professional associations, and disclosed details of the intergenerational leadership succession process published in the association's magazine.
Consulting firm website (engaged since 2011)	Provided insights into the consulting services offered to the company, including strategic planning, budgetary control, and organizational structure design. Also revealed approaches to intergenerational leadership succession adopted by the consulting firm.

The data were analyzed based on the theoretical constructs presented in Table 3, which link the empirical and theoretical categories derived from SCR (Berger & Luckmann, 1966), the innovation typology proposed by Sulaiman & Mitchell (2005), and the management control instruments identified by Oyadomari et al. (2010).

Table 3

Research constructs

Categories	Subcategories	Author(s)
Organizational Innovation	Addition of new components; Replacement of components; Modification of information outputs; Modification of system operation; System reduction	Sulaiman & Mitchell (2005)
MCS	ROE - return on equity; ROI – return on invested capital; EBITDA; Strategic planning; Standard Cost; Variable cost; Absorption cost; Result by Business Unit; Balanced Scorecard (BSC); EVA – Economic Value Added; ABC – Activity Based Costing; Market Value Added – based on the market value of the shares; Zero-Based Budgeting; Target Cost; Kaizen or Six Sigma; Continuous Budget - Rolling Forecasting; Budget; Cash Flow; Sales Made; Customer Satisfaction	Oyadomari et al. (2010)
SCR	Externalization; Objectification; Internalization	Berger & Luckmann (1966)

The data obtained from interviews, observations, and documentary sources were triangulated, enabling the capture of multiple dimensions of the dialectical processes described by the SCR framework (Berger & Luckmann, 1966). The interviews

illuminated aspects of internalization (actors' subjective realities); the observations reflected externalization (actions and habitualizations); and the documentary analysis evidenced objectification (the social facticity of innovation). Given that part of the empirical evidence consists of retrospective narratives, this triangulation enabled confronting participants' memory-based accounts with observational and documentary evidence, thereby helping mitigate potential recall bias (Lincoln & Guba, 1985).

Although access to internal managerial documents was limited, the documentary corpus (news reports and publicly available materials) and the interviewees' narratives provided sufficient evidence to analyze objectification, as SCR recognizes language as the primary vehicle for the objectification of social (Berger & Luckmann, 1966).

The innovation typology proposed by Sulaiman & Mitchell (2005) was employed to empirically classify the innovations, interpreting them as "recipe knowledge" (Berger & Luckmann, 1966), that is, socially shared practical knowledge. The integration of the SCR framework with Discursive Textual Analysis (DTA) provided the analytical foundation for reconstructing the social and symbolic processes through which managerial knowledge was externalized, objectified, and ultimately internalized as organizational reality.

The data were organized and coded in NVivo software, ensuring traceability, analytical rigor, and consistency between empirical and theoretical categories. In addition to the a priori categories presented in Table 3, new interpretive categories emerged from the empirical analysis, expressing how innovation within the MCS is socially constructed during the succession process. These categories are presented and discussed in the Results section.

The phenomenon analyzed is longitudinal and retrospective, even though data collection was cross-sectional, which underscores the risk of recall bias inherent in accounts that reinterpret past events in light of subsequent experiences (Alvesson & Sköldberg, 2017). Accordingly, DTA was applied as a reconstructive method, enabling the interpretation of narratives and documents as historical expressions of the SCR's phases. The analytical process followed the recursive DTA cycle, unitarization, categorization, and communication, which integrates empirical material with theoretical constructs.

During unitarization, interviews, field notes, and documents were segmented into meaning units corresponding to the phases of externalization, objectification, and

internalization. For instance, excerpts in which the successor described the initial proposal of strategic planning were associated with externalization, whereas references to the formalization of budgetary control and financial indicators were linked to objectification, and accounts describing the routine incorporation of these instruments by managers were related to internalization. In line with the assumptions of Discursive Textual Analysis (DTA), meaning units were not treated quantitatively nor counted by category; instead, the analysis was guided by the recurrence and interpretive stabilization of emerging meanings (Moraes & Galiazzi, 2006).

In the categorization stage, these fragments were grouped by semantic similarity, allowing for overlapping units in line with the symbolic and intersubjective nature of discourse (Moraes & Galiazzi, 2006). For example, excerpts that simultaneously addressed the introduction of control instruments and the legitimation of the successor were associated with both the category of administrative innovation and that of managerial legitimation.

In the communication phase, a descriptive-interpretive metatext was developed, synthesizing the understanding of the phenomenon by articulating succession and MCS, and demonstrating how innovation becomes objectified as institutional reality and internalized as subjective experience (Berger & Luckmann, 1966). For instance, the consolidation of budgeting and strategic planning was interpreted as shared symbol of professionalization that legitimized the successor's leadership and came to guide managers' everyday practices.

3. Results

3.1. Company Context: Owning Family and Succession Process

The company operates in the food manufacturing sector, focusing on the production and commercialization of healthy food products, and is a limited liability partnership founded in 1990 in Brazil. The ownership structure comprises two partners: the founder, who holds 90% of the capital, and his wife, who owns the remaining 10%. The founding couple has three children, but only one of them is involved in the company's management.

The firm's origins stem from the founder's transition from academia to the food industry, driven by his research on sugar substitutes. Following the company's foundation in 1990,

product diversification in the late 1990s enabled it to reach a broader consumer base through innovative healthy-eating concepts.

The production was initially limited to a single product. Still, over time, driven by growing market recognition and the desire to expand beyond that initial offering, the company broadened its portfolio. Diversification began in the 1990s, when the founder-initiated research to replace certain ingredients without altering taste. To pursue this objective, he established a laboratory where he conducted a series of experiments until achieving satisfactory results, culminating in the creation of a new product line. This development paved the way for the launch of additional products, aligned with the concept of healthy eating, enabling the company to reach a broader consumer base, including those without dietary restrictions.

According to the Production Manager:

“It is a restless company, always seeking innovation in new products and new work methodologies to serve the market. The company has grown significantly, seeking innovation in its products, and it is no surprise that today it has a varied product portfolio to meet the increasingly demanding end consumer and to face the growth of competition. The company is open to new challenges, and we, as employees, have the freedom to express our ideas”.

The founder currently serves as the company’s President. The eldest son began working at the firm at 21 and, now 40, has 19 years of experience. He has held various positions across multiple departments, including sales, product development, laboratory, finance, and planning. He has served as Executive Director for the past seven years and has two children (the third generation of the owning family). From this point forward, he is referred to as the successor in this study. The other two siblings do not participate in management and currently work in unrelated fields.

Throughout his career at the company, the successor served as interim manager for 2 years due to his father’s temporary absence. Both the founder and the managerial team considered him the natural successor. Thus, succession in this company does not follow a formal, pre-established plan, as recommended in the literature (Le Breton-Miller et al., 2004), but rather has instead evolved organically through initiatives undertaken by the founder and the successor, particularly since 2008.

3.2 Administrative Innovation in the Management Control System (MCS)

The company under study emerged from product innovation and continued to expand through subsequent innovations in its product line. Its organizational structure developed in parallel; however, significant managerial and MCS-related changes, classified as administrative innovations, took place once the successor became actively involved in management, a period that coincides with the ongoing succession process. This moment marks the initial phase of the social construction of innovation, in which the successor begins to articulate new managerial meanings, characterizing the externalization stage of the SCR.

Interview data revealed a series of administrative innovations that emerged particularly after the successor completed a Master of Business Administration (MBA) in Business Management. According to the successor: "We began to structure the administrative area [...] as soon as I finished my MBA, I understood what a company truly was. Because before that, I didn't. I had studied engineering." This narrative evidences the role of secondary socialization in enabling the successor to externalize a new managerial vision grounded in formal knowledge.

During his leadership trajectory, the successor began to apply what he had learned during the MBA, as he explained: "[...] at that time, I started to put into practice what I had seen in the MBA." He also added, "Throughout the company's history, as I took on more responsibilities, I sought training, and at the same time, I began to structure things. Today, we have a training department, not just for me, but for everyone." These statements reinforce the externalization phase, as managerial ideas are translated into intentional actions and interactions aimed at reshaping organizational practices.

In 2003, the successor stated that, with the support of an administrative/financial staff member, he began restructuring the financial department, improving cash flow management, and establishing new relationships and partnerships with banks – a crucial step in the company's financial reorganization, which had never been undertaken before. He also emphasized that, from 2004 onward, he worked with this same employee to reorganize the administrative area, particularly focusing on understanding and improving the organizational chart and introducing strategic planning. As stated by the Administrative and Financial Manager:

“Bringing this into the company was truly fantastic because the idea came from the successor. We needed strategic planning. Looking back, that first plan was very simple but essential; it represented a milestone. It was the first one we ever made”.

At this stage, the successor’s externally articulated managerial ideas become progressively objectified, as strategic planning and financial controls start to materialize as formal instruments within the MCS.

From 2005 onward, the company underwent formalization of its structural and procedural, encompassing inventory movements, financial controls, and production monitoring. This process culminated in the implementation of in-house accounting via an Enterprise Resource Planning (ERP) system that had existed since 2002 but had not yet been fully adopted. By mid-2006, with accounting internalized, budgeting practices were introduced. The Logistics and Supply Manager noted that the successor's arrival marked a turning point, introducing long-term strategic planning and effective budgetary control, which had not previously existed, leading to more efficient management of the firm's accounts.

These developments represent a clear objectification phase, in which managerial intentions are institutionalized through formalized routines, control instruments, and systems that acquire a taken-for-granted status within the organization.

These findings reinforce the emergent category of the successor’s legitimation through MCS instruments. The budget and strategic planning became symbols of rationality and competence, serving as a language of authority and professionalism (Ahrens & Chapman, 2007). In SCR terms, this legitimation reflects the consolidation of objectification, as the successor’s leadership becomes embedded in socially recognized and legitimate control mechanisms. The implementation of these mechanisms marked the objectification of the successor’s leadership, translating his managerial vision into institutionalized practices.

By late 2008, a family holding company was established under the founder’s usufruct. In 2010, the successor began to enhance control mechanisms and to introduce new instruments to support decision-making. Regarding this development, he stated: “That’s why planning was necessary, to start organizing everything, to be able to manage, to show whether something was right or not, calculating ROI (Return on Investment), because there was nothing. It was all very empirical and based on assumptions”. This statement

illustrates the continued objectification of managerial knowledge through calculative practices that formalize decision-making criteria.

Currently, he works with budgetary information and comparative financial statements that contrast the budgeted and actual results, including EBITDA calculations and financial ratio analyses. Between 2013 and 2019, the company continued to develop more complex decision-making structures. It now conducts internal and external audits, including full financial statements. Strategic planning is revised annually with consulting support. As the Accountant emphasized: "[...] the company has evolved a lot, in terms of the number of products, organization, structure, infrastructure, controls, systems, hardware, and software". At this point, the widespread use of these instruments signals the transition toward internalization, as control practices are incorporated into everyday managerial routines.

The company's information system is supported by an Enterprise Resource Planning (ERP) software implemented in 2002 and continuously developed throughout the company's history. The successor explained: "[...] we've had the same system for 'three hundred years,' and today it's very robust, much more than it used to be. The software is open. If you know how to program, you can customize it. For us, that helps a lot [...] we have four programmers". Regarding information system development, the Logistics and Supply Manager added: "[...] the information system has evolved greatly. We've implemented several tools, information systems, control systems, and inventory management through the Warehouse Management System (WMS) we have today. We now have excellent inventory management". These accounts reflect the internalization of technological and control innovations, as they become normalized and embedded in organizational practices.

These transformations constitute the study's emergent analytical category: professionalization of management as a dual symbol of modernization and family continuity. Internally, the managerial changes were perceived as translating the family heritage into a technical, institutionalized language. Henceforth, the MCS came to embody a synthesis of tradition and innovation, thereby functioning as a symbolic bridge between generations. This synthesis is sustained through the internalization of objectified control instruments, which reconcile inherited values with new managerial practices.

These findings indicate that throughout his ascent to leadership and later as Executive Director, the successor employed the MCS as a language to articulate and progressively embed his managerial vision into the family organization. From an SCR perspective, this process reflects the recursive movement between externalization, objectification, and internalization, rather than a merely chronological sequence of changes. This process aligns with the findings of Leotta, Rizza, and Ruggeri (2017), who describe how successors construct their leadership profiles. Based on empirical evidence, Table 4 lists and classifies some administrative innovations in the MCS instruments that emerged during the succession process in the company under study.

Table 4

Qualification Of Organizational Innovations and MCS Instruments

Organizational Innovations	MCS Instruments
Addition of new components	Strategic planning
	Matrix budget
	ROI
	Ebitda
	Variable cost
	Market-share
Modification of information outputs	Daily Cash Flow
	Sales made
Modification of system operation	ERP implementation
	WKS implementation

The evidence indicates that while family values remain stable and widely shared across the organization, the successor introduced a new managerial vision during his succession. This vision, rooted in newly acquired capabilities and skills, proved crucial to gaining the founder's, the families, and external stakeholders' acceptance of his leadership (Leotta et al., 2017). From the perspective of the SCR, this finding reflects the internalization of the successor’s managerial vision, as new meanings associated with control and professionalization become socially shared and taken for granted within the organization.

These findings reinforce the argument that administrative innovation, while materializing in new control instruments, is fundamentally a social process of legitimation and professionalization. In this process, the Management Control System (MCS) functions as a symbolic mediator of succession and a vehicle for organizational meaning (Ahrens & Chapman, 2007; Berger & Luckmann, 1966; Leotta et al., 2017). Analytically, this mediating role of the MCS consolidates objectification, through which managerial

practices acquire institutional status and support the legitimacy of the successor's authority.

The new management control instruments introduced following the successor's involvement also facilitated product innovations, which became a distinctive feature of the company. This interaction illustrates the recursive nature of the SCR dialectical process, in which objectified control practices create conditions for further externalization of innovative initiatives. This dynamic can be observed in the Human Resources Manager's statement:

"For the next year, I've been considering the "just like that" project, so that we can validate the differentiated budget. Today, we have this possibility for discussion, always thinking about improvements. Therefore, all our projects today must be based on strategic planning. If I present a project to the board today, I must first explain its expected impact on results in terms of strategic planning. In this way, good projects are always approved". The routinized use of budgetary control and strategic planning as criteria for project approval indicates the internalization of these instruments as legitimate and shared references for decision-making.

This perspective aligns with Chenhall and Moers (2015), who emphasize that the budgeting, despite its traditional association with static control, can be used flexibly to accommodate innovation. This is evident in the analyzed firm, where the budgeting instrument supported managerial efforts driven by product innovation. Within the SCR framework, this flexibility reinforces the idea that internalized control practices are continuously reinterpreted and mobilized to sustain innovation and organizational learning.

3.3. Social Construction of Administrative Innovation in the Management Control System (MCS) Based on Intergenerational Succession

The gathered evidence through observations and interviews illustrates that the company's philosophy, vision, mission, and goals are deeply rooted in the founders' historical actions. This symbolic legacy constitutes the foundation of the existing organizational reality, which the successor continually reinterprets. Guided by newly acquired knowledge and practices, the successor focused on formalizing and rationalizing the MCS through administrative innovations that modified and expanded its instruments.

Analytically, these dynamics are interpreted through the SCR dialectical triad, which frames how inherited meanings are rearticulated and transformed during succession.

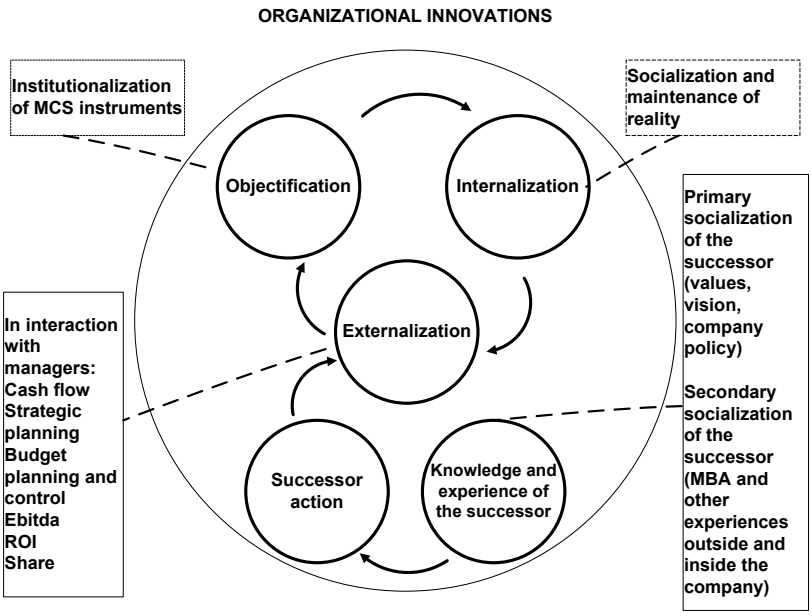
According to SCR, social reality is produced through the externalization, objectification, and internalization of actions that enable the transfer of knowledge among interacting individuals. Applied to the MCS, this triad explains how control instruments become institutionalized as socially recognized artifacts that express shared values, beliefs, and practices, thereby structuring organizational life (Ahrens & Chapman, 2007; Berger & Luckmann, 1966). This theoretical lens guides the interpretation of the empirical material, rather than functioning as a mere descriptive backdrop.

Through this dialectical cycle, the MCS and its instruments evolved into a system of symbols embodying interrelated meanings that were perpetually shaped and reshaped to define the organization's reality. The control instruments began to function as both a formal and symbolic language, conferring visibility and legitimacy to the successor's leadership. It is important to note that the dialectical triad operates simultaneously and interdependently (Berger & Luckmann, 1966). Thus, changes in control practices are understood as cumulative and recursive rather than linear or sequential.

In this context, Figure 1 illustrates the process of the MCS instruments' social construction, which characterizes the administrative innovations initiated by the successor in managing the company under study. The figure synthesizes the analytical chaining underpinning the narrative presented in this section, offering a visual articulation of the dialectical processes discussed below.

Figure 1

Social Construction of Organizational Innovations and MCS



The process begins with the successor externalizing new ideas — acquired through academic training and professional experience (secondary socialization) – and translating them into practices and interactions with managers. These ideas become objectified when formalized into MCS instruments and routines such as budgeting and strategic planning, thereby acquiring legitimacy as organizational realities. Subsequently, through internalization, these instruments are adopted by managers and family members, fostering shared learning and mutual trust. Ultimately, the collective acceptance of these new instruments consolidates the symbolic meaning of professionalization and strengthens the successor's role as a legitimate leader. This articulation clarifies how managerial intentions, once externalized, acquire institutional form and are progressively incorporated into everyday organizational practices.

This cycle repeats for each administrative innovation, meaning that every modification to the MCS represents the sedimentation of new social meanings. Once an instrument becomes ingrained, it creates space for reflection and further innovation, broadening shared knowledge and symbolic cohesion among organizational members. In this sense, the MCS functions as a social mediator of integration and learning (Englund & Gerdin, 2014; Leotta et al., 2017). Accordingly, the MCS is not merely a technical system, but a vehicle through which meanings are stabilized and reinterpreted over time.

The empirical evidence demonstrates that the social construction of administrative innovation is expressed through the MCS's symbolic language, which is intrinsically

linked to the sustainable continuity of the family firm. The SCR thus enables the interpretation of the MCS as a bridge between tradition and change, where the successor's managerial vision is gradually incorporated into the collective understanding of the family organization. This incorporation reflects the consolidation of shared meanings that support both continuity and transformation within the firm.

These corroborate Letonja and Duh's (2016) findings, which highlight the role of the successor's new perspectives as a source of innovation. They also align with research indicating that the entrepreneurial and cognitive skills inherited from the founders constitute the foundation upon which the successor legitimizes new practices (Letonja, Jeraj & Marič, 2016; Hauck & Prügl, 2015). Within the SCR framework, these inherited skills operate as symbolic resources that facilitate the acceptance of new managerial arrangements.

In summary, the emergent categories derived from the Discourse Textual Analysis (DTA) reveal how the intergenerational succession process acts as a catalyst for administrative innovation. Table 5 below presents the articulation between the identified categories, the corresponding SCR stage, and illustrative examples from the empirical corpus. Rather than representing discrete steps, these categories capture analytically distinct moments of a single, ongoing dialectical process.

Table 5

Emerging Categories Identified

Emerging Category	Interpretive Description	Corresponding SCR Stage	Illustrative Empirical Evidence
Legitimation of the successor through MCS instruments	Changes in the MCS reinforce the successor's authority and professionalization.	Objectification	"The budget gave us another view of control, a more transparent one." (Financial Manager)
Professionalization as a symbol of modernization and family continuity	Adoption of modern managerial practices associated with family tradition.	Externalization / Internalization	"My father sees that we are evolving, but still keeping our values." (Successor)
Reconfiguration of family and managerial roles	Clearer distinction between family relationships and professional functions.	Internalization	"Now decisions are discussed in the boardroom, not at the lunch table." (HR Manager)
The MCS as a language of intergenerational integration	Control mechanisms serve as a shared language between generations.	Objectification	"The numbers help translate the heir's vision." (Founder)

Innovation as a process of social legitimation	Innovation is perceived as a means of recognition and trust-building.	Externalization / Objectification / Internalization	"When they saw the results, they accepted my ideas." (Successor)

These five emergent categories encapsulate the process of social construction of administrative innovation within the MCS, illustrating that intergenerational succession drives a continuous cycle of externalization, objectification, and internalization. Through the lens of the Social Construction of Reality framework, this analysis reveals that the innovations introduced by the successor represent symbolic transformations that redefine roles, reinforce legitimacy, and sustain the professionalization of the family firm. Taken together, the narrative, the figure, and the table provide complementary representations of the same analytical chaining, operating at different levels of abstraction.

4. DISCUSSION

The results of this study corroborate prior research positioning succession as an opportunity for innovation and organizational revitalization (Baltazar et al., 2023; Cesaroni et al., 2021; Capella et al., 2024; Dorsch et al., 2023; Frezatti et al., 2023; Leotta, Rizza & Ruggeri, 2023).

The investigated company experienced substantial administrative innovations only after the successor's participation, suggesting succession functioned as a triggering mechanism for reinterpreting organizational conditions. Equipped with managerial knowledge from an MBA, the successor acted as a change agent by introducing strategic planning, matrix budgeting, ROI, and EBITDA, transforming formal knowledge into concrete practices (Capella et al., 2024; Frezatti et al., 2023). Following Sulaiman and Mitchell's (2005) typology, these additions and modifications qualify as administrative innovations because, although common elsewhere, they represented a rupture with the firm's previously dominant intuition-based practices.

The new leader's legitimation was directly linked to his ability to promote MCS innovations. The introduction of new control instruments during succession served as mechanisms for building legitimacy and shaping his leadership profile, thereby strengthening trust and team engagement (Leotta, Rizza & Ruggeri, 2023). The successor used the MCS as a language to represent his managerial vision, thereby expanding his political and symbolic capital (Capella et al., 2024; Cisneros et al., 2022; Leotta et al.,

2017). In this sense, innovation and legitimation unfolded as intertwined processes, rather than as independent managerial outcomes.

This study's primary contribution is its application of the Social Construction of Reality's (SCR) dialectical triad (Berger & Luckmann, 1966) to elucidate the cycle of administrative innovation. This approach reveals the social meaning of control instruments, framing the MCS as a symbolic system that structures organizational interactions in family firms (Capella et al., 2024). By emphasizing meaning construction rather than conformity or efficiency, the SCR lens extends prevailing explanations of MCS change grounded in institutional or purely technical perspectives.

From this perspective, the MCS functions as a vehicle for objectifying social reality, in which instruments such as the budget and ROI become institutionalized and collectively accepted as "recipe knowledge" (Berger & Luckmann, 1966; Cesaroni et al., 2021). The internalization of these instruments by managers and family members represents the incorporation of a new organizational reality in which control serves as a symbolic mediator of trust and innovation (Frezatti et al., 2023). Thus, innovation is conceived as a socially constructed phenomenon within the intergenerational context (Capella et al., 2024; Cesaroni et al., 2021).

This study extends the literature on succession as a catalyst for MCS change (Leotta et al., 2017) by empirically demonstrating the underlying dialectical cycle - externalization, objectification, and internalization - that constitutes the social construction of control instruments (Leotta, Rizza & Ruggeri, 2023). The use of DTA allowed for tracing the temporal dynamics of these phases and demonstrating how the meaning of management instruments is continuously reconstructed through social interactions. Rather than merely describing succession-related change, this analysis highlights how succession enables the articulation and stabilization of new managerial meanings over time.

The findings also indicate that succession interacts with other factors, including organizational growth and the successor's cognitive capital (Golden, 1992; Cesaroni et al., 2021). The founders' entrepreneurial skills formed the basis for the successor's primary socialization and served as a symbolic resource for legitimizing his leadership, making the succession period a favorable context for innovation (Frezatti et al., 2023; Hauck & Prügl, 2015; Letonja, Jeraj & Marič, 2016). While growth, market dynamics, and accumulated capabilities formed an enabling context, the empirical evidence suggests

that these factors gained transformative force primarily through the succession process, which integrated them into a coherent cycle of change.

Finally, the results show that MCS instruments were used in flexible and innovative ways, diverging from traditional hierarchical control. Budgeting and strategic planning were mobilized to validate improvement and learning projects (Capella et al., 2024; Chenhall & Moers, 2015), while the adaptive capacity of ERP and WMS systems demonstrated technology's role in externalizing and objectifying innovation (Frezatti et al., 2023). These practices illustrate that administrative innovation was not limited to technical implementation but involved the reinterpretation of control instruments as supports for learning, dialogue, and legitimacy.

The integration of SCR and MCS theories illuminates the successor's symbolic legitimation cycle, in which control serves as a mediator of social interactions and a vector of continuity across generations (Capella et al., 2024; Leotta, Rizza & Ruggeri, 2023). Accordingly, succession emerges not as a background event, but as the social mechanism through which administrative innovation in the MCS is constructed, legitimized, and sustained over time.

While alternative explanations such as organizational growth, market competition, and consulting influence may have contributed to changes in the MCS, the empirical evidence suggests that succession served as the primary catalyst, enabling and legitimizing these changes. Succession created a symbolic window of opportunity in which the successor's formal knowledge and authority allowed the introduction and acceptance of new control practices (Berger & Luckmann, 1966; Capella et al., 2024). Rather than competing explanations, these factors operated concomitantly, with succession functioning as the central mechanism that integrated and activated them.

5. CONCLUSIONS

This study aimed to analyze, through the lens of the Social Construction of Reality (SCR), how the processes of externalization, objectification, and internalization underpin the social construction of innovation within the Management Control System (MCS) during succession in a family firm. The single case study, conducted in a large, innovation-recognized Brazilian company, demonstrated that intergenerational succession acts as a catalyst for both administrative innovation and the symbolic legitimation of new leadership.

This study offers the following contributions to the literature and managerial practice:

(i) Empirical Tracing of the SCR Process: The application of Discourse Textual Analysis (DTA) enabled the tracing of the temporal dynamics of the SCR phases, providing empirical evidence of how the social meaning of MCS instruments is constructed and incorporated as a new organizational reality. The results highlight the critical role of objectification and internalization in consolidating the legitimacy of both the MCS and the successor.

(ii) Succession as a Catalytic Mechanism: The study positions succession as a catalytic mechanism that interacts with individual and organizational factors, such as the successor's acquired knowledge. By introducing new management practices, the successor reinforced his role as an innovator, while the founders' entrepreneurial skills established a conducive environment for intergenerational learning and change.

(iii) The MCS as a Symbolic System: The research reinforces the understanding of the MCS as a formal language and a symbolic system of interaction, used by the successor to express his managerial vision and build trust. This language supported his political and social capital, contributing to the firm's sustainable continuity. Even traditional instruments were adapted for innovative efforts, demonstrating the flexibility of control in succession contexts.

From a practical standpoint, the findings emphasize to owners and successors the importance of investing in professional education and adapting control systems, thereby reinforcing the successor's legitimation through the conscious adoption of these managerial instruments. In this context, professionalization emerges as a simultaneous driver of continuity and innovation.

Despite the methodological rigor, certain limitations must be acknowledged:

(i) Cross-Sectional Data Collection: Although the phenomenon has a longitudinal nature, data collection was cross-sectional. The use of DTA helped reconstruct the temporal process, yet the design carries inherent interpretive limitations.

(ii) Limited Generalizability: As a single case study, the results are context-specific and not generalizable to all family firms.

(iii) Document Access: Access to some internal documents was restricted, though the available interview and documentary corpus was sufficient to support the analysis.

For future research, the following directions are proposed:

(i) Longitudinal Studies: Conduct studies that monitor the succession process and MCS innovations in real time, reducing reliance on retrospective accounts.

(ii) The Final Transfer of Power: Investigate the concluding phase of succession, focusing on the complete transfer of power and its implications for the MCS.

(iii) Comparative Studies: Perform comparative studies across family firms of different sizes and industries to explore contextual variations in the relationship between succession, innovation, and symbolic legitimation.

Author Contributions

Conceptualization: CH and CEFL; data curation: CH; formal analysis: CH and CEFL; writing (original draft): CH and CEFL; writing (review & editing): CH and CEFL; supervision: CEFL.

Conflict of Interest Statement

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Scientific reflection vs professional practice: epistemological tensions in AI auditing literature (2019-2024)

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ABSTRACT
This study examines how academic discourse (2019-2024) reflects epistemological tensions in AI's integration into external auditing through Pierre Bourdieu's field-habitus dialectic. From 397 Scopus-indexed publications, a systematic analysis of 22 core papers reveals a professional habitus that operationalizes AI as efficiency-enhancing symbolic capital while selectively disengaging from problematizing the scholastic fallacy, confirming a theory-practice divergence. Hybrid formations predominate, evidencing field-level alignment that mediates structural tensions. Universal transformative framing establishes AI as a field-specific doxa, yet professional operational bias subordinates the problematization of governance risk. Methodological homologies structure this dialectic, with quantitative and conceptual approaches aligning professional dispositions and interpretive formats sustaining scientific reflexivity. Findings validate Bourdieu's praxeology for illuminating AI not merely as a technical artifact, but as a contested site of capital restructuring, and for auditing scholarship between scholastic deliberation and practice imperatives.

KEYWORDS

Audit, Artificial intelligence, Bourdieu, Theory-practice gap, Digital transformation.

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1. Introduction

Auditing plays an essential role in ensuring business transparency and credibility, strengthening market confidence, and contributing to global financial stability. Its effectiveness, however, depends on the quality of the processes and tools used, as well as on the auditor's ability to adapt to increasingly digitalized environments. Information technology (IT) has become a strategic resource for optimizing auditing practices, improving accuracy, operational efficiency, and risk and fraud detection (ACCA, 2019; Thottoli et al., 2024). Today, it is virtually impossible to conceive of effective audits without IT support, which enables task automation, large-scale data processing, and strengthened internal controls.

The auditing sector is currently undergoing a disruptive structural change, driven by technological advances that are redefining both the structure of professional services and the strategic role of auditors. Within this context, the integration of disruptive technologies such as artificial intelligence (AI), blockchain, and robotic process automation (RPA) represents not only a technological transition but also a rethinking of the knowledge base of how financial information is produced, verified, and interpreted. While the foundational role of IT in auditing traces back to the early conceptualizations of Leavitt and Whisler (1958), the current acceleration of AI represents more than a technical upgrade; it is an epistemological reconfiguration where technology functions as symbolic capital (Antonelli & Rossi, 2025), redefining professional judgment and the boundaries of trust.

These innovations generate profound economic and organizational implications. In the business sphere, IT and AI have demonstrated their ability to optimize time and resource management, reduce costs, and increase process efficiency (Moll & Yigitbasioglu, 2019). In auditing, their adoption is associated with improvements in efficiency and the reliability of financial reports, as well as with strengthening auditors' confidence in the results delivered to clients (Tarek et al., 2017; Elommal & Manita, 2022). At the same time, this process redefines the auditor's professional profile, from a procedural verifier to an analytical agent capable of supervising automated systems and interpreting algorithmic outputs (Huang & Vasarhelyi, 2019).

Consequently, the convergence between auditing and technology has transformed the profession into an increasingly strategic field. Far from replacing auditors, emerging technologies are positioned as complementary tools that enhance their judgment and

capacity to generate added value. However, this technological evolution also exposes a structural tension between academic theory and professional implementation. Academic research tends to emphasize ethical considerations, algorithmic transparency, and regulatory frameworks, whereas audit firms face operational constraints, cost barriers, and resistance to change. Recent literature highlights this tension; while some studies, such as Han et al. (2023), focus on contexts preceding recent technological developments, the rapid acceleration observed between 2019 and 2024 highlights the need to update and expand analyses to connect epistemological reflection with practical evidence and technological governance.

Building on this premise, this research examines how the academic literature from 2019 to 2024 depicts the epistemological and professional transformations in external auditing driven by AI. Rather than assessing technological performance, it analyzes how scholarly discourse frames this transformation and whether it exposes a disconnection between theoretical reflection and professional application. Drawing on Bourdieu's notion of habitus (Bourdieu, 2000), the study interprets the reviewed works as expressions of two analytic orientations within the academic field: a scientific habitus, oriented toward conceptual and ethical deliberation, and a professional habitus, shaped by pragmatism, efficiency, and implementation demands. These differing logics coexist and interact within academic discourse, helping to explain the tensions between conceptualization and the realities of technological implementation in auditing practice.

The study seeks to contribute to a deeper understanding of how the auditing discipline adapts its core principles amid rapid technological change, framing AI not only as a tool but as a catalyst for rethinking the boundaries between academic knowledge and professional practice, a perspective that guides the systematic analysis developed in the following sections.

The structure of this paper is organized as follows. After the introduction, Section 2 outlines the theoretical framework that underpins this study. Section 3 details the methodological design, while Section 4 provides a comprehensive analysis of the main findings. Section 5 discusses these results, and finally, Section 6 presents the overall conclusions and final remarks of the research.

2. Theoretical Framework

Beyond its technical dimensions, the integration of artificial intelligence (AI) into external auditing can be conceived as an epistemological shift that reconfigures the

professional field (Moll & Yigitbasioglu, 2019). To explore how academic discourse between 2019 and 2024 constructs this transformation, this study draws upon Pierre Bourdieu's praxeology, especially the dynamics between field and habitus (Shenkin & Coulson, 2007). This framework enables an inquiry into whether AI intensifies structural divisions or facilitates emerging hybrid orientations that mediate between scientific reflection and professional pragmatism.

2.1. Scientific vs professional habitus (D1)

Bourdieu's notion of habitus captures the enduring dispositions that shape agents' practices and perceptions within social fields (Bourdieu, 1990). In the auditing domain, both within academic production, distinct habitus orientations emerge discursively. A scientific habitus traditionally prioritizes ethical reasoning and conceptual reflection, often abstracted from everyday constraints (Bourdieu, 2000; Schirone, 2023). Conversely, the professional habitus centers on performative demands, that is, timeliness, efficiency, and practical decision-making under uncertainty (Shenkin & Coulson, 2007; Correa et al., 2023).

The recent acceleration of AI adoption provides a particularly rich context for observing how these orientations coexist and influence one another. Rather than presuming a fixed divide between academic reflection and professional pragmatism, this study explores how the expansion of AI invites new forms of interaction between them. As AI technologies begin to shape both research practices and organizational routines, they may realign established boundaries of authority, methodological preference, and ethical reasoning within the field. Thus, the following research question (RQ) is posited.

RQ1: How does the rapid emergence of AI in auditing discourse illuminate the evolving relationship between the scientific and professional habitus?

2.2. The scholastic fallacy and theory-practice gap (D2)

Bourdieu (2000) defines the scholastic fallacy as the inclination of researchers to universalize theoretical constructs while overlooking the situational constraints of practical reason. In the AI auditing literature, this tendency is evidenced when normative frameworks or governance models remain detached from the implementation barriers faced by audit firms (Shenkin & Coulson, 2007). Such detachment risks symbolic violence, as academic authority may inadvertently legitimize efficiency-driven or hierarchical structures under the guise of technological neutrality (Malsch et al., 2011).

At the same time, not all discourses may reproduce this disconnect. A growing body of work reflects partial efforts to bridge theory and practice through applied ethics, data governance, or mixed-methods approaches (Correa et al., 2023). These movements suggest that theoretical reflection may be gradually adapting to empirical and organizational realities rather than standing apart from them.

This study, therefore, explores how academic texts engage with the scholastic fallacy as a field tension, whether explicitly, implicitly, or not at all. Examining the degree and manner of this engagement reveals whether AI-related scholarship continues to project scholastic abstraction onto professional realities or signals a shift toward reciprocal exchange between conceptual reasoning and applied practice.

RQ2: How does AI-related auditing research engage with the scholastic fallacy, explicitly, implicitly, or through silence, and what does this reveal about the evolving interaction between theoretical reflection and professional practice?

2.3. AI as symbolic capital (D3)

Within academic discourse, AI emerges as symbolic capital that confers prestige and authority upon scholarly agents (Bourdieu, 1990a; Schirone, 2023). This dynamic reflects accounting academics' longstanding strategy of mobilizing theoretical capital to assert field-specific dominance and influence professional practice. Such mobilization aligns with a broader disciplinary tradition in which researchers deploy the power of theory (Antonelli & Rossi, 2025) to shape socio-economic and policy interventions, transferring academic authority into adjacent fields of action.

In the AI–auditing context, this process often manifests through normative agenda-setting, conceptual frameworks, and ethical deliberation, even as practitioners face persistent operational challenges such as algorithmic opacity or "black box" constraints (Lehner et al., 2022). Consequently, AI becomes a symbolic object refracted through divergent constructions: for some, a transformative force promising greater transparency (Han et al., 2023); for others, a risk-laden technology that reinforces existing hierarchies and forms of domination (Lehner et al., 2022).

The circulation of AI's symbolic value across academic and professional spheres highlights the field's permeability. Scholars may shape professional agendas through theoretical framing, while practitioners, in turn, influence research orientations through technological developments and institutional pressures. This interplay situates AI not

only as a technical artifact but also as a field-specific doxa that mediates the struggle for epistemic and strategic authority.

RQ3: How does AI operate as symbolic capital across academic and professional fields, and to what extent does this circulation foster alignment or conflict between their discursive logics?

3. Methodology

3.1. PICO Methodology

The PICO methodology, originally developed by Kitchenham (2004) and extensively validated across systematic literature reviews (Sánchez-García et al., 2024), provided the foundational structure for initial corpus identification in this study. The framework's core components were operationalized as follows: Population encompassed external auditing practices conducted within organizational contexts (explicitly excluding internal auditing to maintain field specificity); Intervention focused on the integration and application of artificial intelligence technologies within audit processes; Comparison examined variations in discursive orientation across the selected literature, contrasting scientific, professional, and hybrid habitus as well as differences between AI-related and traditional audit discourses; and Outcome variables captured mapped patterns of academic discourse, including the identification of habitus orientations, recognition of theory-practice disjunctures, and constructions of AI as transformative promise, governance risk, or operational reality.

Scopus was intentionally selected as the primary database because of its widely recognized status as a comprehensive index of peer-reviewed academic literature, offering extensive coverage across accounting, management, and related disciplines while maintaining accessibility for researchers (Pasko et al., 2021). Recognizing the dominance of English in AI-auditing scholarship, keywords were defined exclusively in English after preliminary searches yielded negligible Spanish-language results in relevant fields of study.

A targeted set of keywords (Audit/External audit, Artificial Intelligence, and Information Technology) was systematically combined to construct six Boolean search strings, which retrieved a total of 397 documents published between 2019 and 2024. These strings included: “Audit AND Information Technology AND Artificial Intelligence”, “Audit AND Artificial Intelligence”, “External Audit AND Artificial Intelligence” (among

others). Data extraction occurred on January 8, 2025, utilizing the (TITLE-ABS-KEY) operator with subject category filters limited to business, management, accounting, economics, econometrics, and finance, capturing the key period of rapid AI discourse evolution during technological acceleration and professional uncertainty. Table 1 presents the detailed distribution of initial search results by individual string (n=397 total). The preliminary search results were exported to Excel format, including the title, authors, year, journal and abstract.

Table 1. Distribution of Articles Found by Search String

Search Strings and Applied Filters	**Number of Documents**
TITLE-ABS-KEY (audit* AND artificial intelligence* AND information technology*) AND PUBYEAR > 2018 AND PUBYEAR < 2025 AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "ECON"))	57
TITLE-ABS-KEY (external audit* AND artificial intelligence* AND information technology*) AND PUBYEAR > 2018 AND PUBYEAR < 2025 AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "ECON"))	7
TITLE-ABS-KEY (audit* AND artificial intelligence*) AND PUBYEAR > 2018 AND PUBYEAR < 2025 AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "ECON"))	307
TITLE-ABS-KEY (external audit* AND artificial intelligence*) AND PUBYEAR > 2018 AND PUBYEAR < 2025 AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "ECON"))	26

To ensure methodological rigor, specific inclusion criteria were established: (1) articles published exclusively in peer-reviewed academic journals; (2) documents explicitly addressing external auditing practices integrated with artificial intelligence technologies (encompassing financial auditing and information technology applications). Conversely, exclusion criteria eliminated: (1) publications dated before 2019 or after 2024 given the

dynamic evolution of AI discourse; (2) duplicate records; (3) articles in pre-print or non-final publication stages lacking definitive pagination; (4) non-scientific document types; (5) studies focused on internal auditing rather than external practices; and (6) articles unrelated to explicit IA use and the Bourdieusian analytical dimensions.

The final corpus emerged through a rigorous two-stage screening process: initial application of exclusion criteria, followed by exploratory review of the abstracts, introductions, and conclusions of the remaining documents. This systematic filtering reduced the initial pool from 397 articles to 45 (first stage) and ultimately to 22 final papers suitable for Bourdieusian content analysis. Table 2 illustrates the complete selection progression and documents the transparent application of PRISMA standards throughout the literature identification and screening phases.

Table 2. Sample Reduction After Applying Exclusion Criteria

Exclusion criteria	**Excluded papers**	**Included papers**
Initial Sample		397
Publication Stage	(17)	380
Document Type	(147)	233
Duplicate Articles	(60)	173
Other Exclusion Criteria	(128)	45
Total	(352)	45

3.2. Bourdieusian Content Analysis with AI Assistance

The 22 selected papers were analyzed through a systematic Bourdieusian content analysis using Google NotebookLM. The procedure translated theoretical constructs into analytical categories derived from the framework and applied them via structured natural-language prompts. Each classification required literal textual quotations as supporting evidence and was then reviewed by humans. This AI-assisted protocol ensured a reproducible mapping of academic discourse patterns while maintaining theoretical fidelity to Bourdieu's field perspective.

Analysis proceeded sequentially within individual paper-specific notebooks. The first prompt required NotebookLM to classify each paper's dominant habitus orientation: scientific (ethics/theory/normative focus), professional (implementation/practice emphasis), or hybrid; substantiating classifications with two direct quotations from the original text. The second prompt evaluated recognition of the theory-practice disjuncture, categorizing papers based on whether they contained explicit gap statements, implicit

barrier discussions, or demonstrated no recognition, again supported by verbatim textual extracts. The third prompt mapped discursive constructions of AI, distinguishing transformative promise (transparency/future-oriented), governance risk (ethics/regulation), or operational reality (implementation evidence), with quoted textual support required for validation.

Prompt outputs were systematically aggregated (D1, D2, D3) into a master coding matrix in Excel format. The master coding matrix was completed by recording the methodological characteristics identified in each paper, categorizing studies as quantitative empirical analyses, qualitative investigations, case studies, mixed-method designs, conceptual or exploratory frameworks, or systematic literature reviews. Methodological rigor was established through independent double-prompting of 25% of the corpus (n=6 papers), yielding 88.8% inter-coder agreement (32/36 matches across 6 categories). This transparent, quote-verified AI protocol ensured reproducible application of Bourdieusian field theory across the complete 2019-2024 literature sample.

4. Results

4.1. Bibliometric Characteristics of the Field

The systematic search yielded a corpus of 22 papers spanning 2019-2024 that reveals a rapidly expanding yet structurally fragmented academic field, suggesting competing habitus positions (see Supplementary material). Publications demonstrate nonlinear growth, accelerating significantly from 2022 to 2024, reflecting AI's emergence as a central focus of academic debate. This pattern captures a shifting field in which scientific and professional narratives begin to interact and redefine their boundaries.

Four journals account for 45% of publications, with the International Journal of Accounting Information Systems leading (n = 3), indicating a concentration of specialized outlets amid broader interdisciplinary dispersion across 14 countries (Tables 1–2, available as Supplementary Material). The United States leads in productivity (n = 5), followed by the United Kingdom (n = 4). Citation data, however, show a pronounced concentration of symbolic capital: the top 23 authors capture 81.8% of total citations (3,495), led by Manita et al. (2020), whose article registers exceptional impact (225 citations compared with a journal CiteScore of 13.6).

This combination of geographic dispersion, journal fragmentation, and citation inequality reveals a heterogeneous field still consolidating its epistemic boundaries. The absence of

shared doxa and the uneven distribution of symbolic capital provide the empirical backdrop for the Bourdieusian content analysis, which systematically explores how these structural asymmetries shape AI-related academic discourse.

4.2. Burdesian Content Analysis

Table 3 reveals persistent tensions within the scholarly field regarding AI integration in external auditing. Across the 22 analyzed papers, recognition of Bourdieu's scholastic fallacy (D2) is notably widespread (77% overall), while AI is consistently framed as a source of symbolic value and transformation (D3-TRANSFORM: 100%). The distribution of habitus types further highlights internal differentiation; hybrid orientations predominate (45%, 10 papers), professionals form a near-plurality (41%, 9 papers), and purely academic contributions remain limited (14%, 3 papers).

Acknowledgment of the scholastic fallacy (D2) varies systematically across these orientations. Scientific papers exhibit full theoretical alignment (100%, 3 papers), whereas professional (78%, 7 papers) and hybrid contributions (70%, 7 papers) engage more selectively, balancing theory with practical considerations. D3 theme analysis also reveals broad agreement on AI's transformative role (100%), but discussions still emphasize operational efficiency (95%) far more than governance risks (86%).

Table 3. Habitus Profiles and AI Framing in AI-Auditing Literature (2019-2024)

Habitus Type	Count	% Total	D2 Explicit	D3-TRANSFORM	D3-GOV RISK	D3-OPERATIONAL
PROFESSIONAL	9	41%	78%	100%	78%	89%
SCIENTIFIC	3	14%	100%	100%	100%	100%
HYBRID	10	45%	70%	100%	90%	100%
Total	22	100%	77%	100%	86%	95%

Although all publications are published in academic journals, each text positions itself discursively within distinct habitus orientations (scientific, professional, or hybrid), reflecting alternative logics of reasoning within the same scholarly field. The professional habitus exhibits the expected practical orientation characteristic of Bourdieu's (2000) logic of practice. Full endorsement of AI's transformative potential (100%) combines with strong operational focus (89%), as evidenced by claims that "new technologies will have a positive impact on auditors' everyday activities by allowing them to operate more efficiently and effectively" (Vitali & Giuliani, 2024), yet partners demand "return straightaway (...) they need to see it working" (Seethamraju & Hecimovic, 2023). This

practical emphasis manifests in comparatively muted acknowledgment both of the scholastic fallacy (D2: 78%) and governance risks (D3-GOV RISK: 78%), evidencing temporal constraints subordinating substantive deliberation to efficiency imperatives, even when risks surface as "loss of control, with no knowledge of what drives the decisions" (Seethamraju & Hecimovic, 2023).

Conversely, the scientific habitus demonstrates comprehensive engagement across all analytical dimensions (D2: 100%; D3 themes: 100%), reflecting the scholastic disposition's commitment to normative model-building and ethical universality (Bourdieu, 2000). The following quotes explicitly problematize the scholastic fallacy's disregard for practical reason:

"AI alone (...) cannot make ethical accounting decisions because it lacks the necessary preconditions in terms of Rest's model of antecedents" (Lehner et al., 2022).

"(…) precious elements of [judgment] are still at play in areas relentlessly promoted as low value and in need of automation" (Samiolo et al., 2024).

Authors adopting a hybrid habitus display balanced coverage across analytical dimensions (D3-OPERATIONAL/TRANSFORM: 100%; D3-GOV RISK: 90%), demonstrating a field-level alignment that connects conceptual reflection with practical demands. "As AI matures, explaining AI, rather than solely refining its performance, is becoming increasingly important" (Zhang et al., 2022) illustrates this mediating stance, while "(…) external auditors (…) might take on a new role as consultants with unique skills in classifying and processing data" (Nguyen et al., 2024) demonstrates the pragmatic use of theoretical insight within practice-oriented reasoning. Such hybrid positioning indicates a gradual redefinition of boundaries within the auditing field, in which academic reflection and professional pragmatism increasingly converge in a shared discursive space.

4.3. Methodological orientations and field dynamics

Cross-tabulation of the 22 papers reveals distinct patterns linking methodological choices and habitus orientations (Table 4). When viewed by methodology (Table 4, panel A), the professional habitus dominates the conceptual (100%) and quantitative (60%) formats, consistent with its emphasis on measurable efficiency and applicability. The scientific habitus prevails in case studies (50%) and literature reviews (50%), approaches that facilitate theoretical reflection and interpretive depth. Mixed-methods designs appear

exclusively within hybrid papers (100%), highlighting their mediating position between academic reflection and applied practice.

Conversely, when distributions are examined by habitus type (Table 4, panel B), the hybrid orientation displays the broadest methodological repertoire. Although mixed methods account for half of this group's output (50%), hybrids also employ qualitative (20%), quantitative (20%), and literature review approaches (10%), indicating methodological adaptability rather than strict specialization. The professional habitus relies mainly on conceptual (33.3%) and quantitative (33.3%) studies, while the scientific habitus favors case-based and literature review research (both 33.3%) that sustain theoretical distance from operational constraints.

Taken together, these configurations suggest strong but asymmetric homologies between methodology and habitus. Professional orientations reproduce the logic of practice through empirical formalization; scientific ones reaffirm reflective distance; and hybrids exhibit a form of methodological alignment that integrates analytical reasoning with practical applicability. Such convergence signals a gradual redefinition of boundaries within the auditing field.

Variation in D2 explicitness further reflects these method-habitus relationships. Case studies and conceptual work fully recognize the scholastic fallacy (100%), whereas quantitative approaches show moderate engagement (60%). Literature reviews show partial acknowledgment (50%), while mixed-methods studies reveal pragmatic selectivity (60%). Qualitative studies maintain a comparatively high level of reflexivity despite diverse habitus representation (20% scientific, 40% professional/hybrid).

Table 4. Methodological Profiles by Habitus and D2 Explicit Recognition (n=22)

PANEL A: professional habitus distribution per methodology

Methodology	**Scientific (%)**	**Professional (%)**	**Hybrid (%)**	**Total**
Literature Review	50%	0%	50%	100%
Case Study	50%	50%	0%	100%
Quantitative	0%	60%	40%	100%
Qualitative	20%	40%	40%	100%
Mixed	0%	0%	100%	100%
Conceptual	0%	100%	0%	100%

PANEL B: methodology distribution per professional habitus

Methodology	**% 22 papers**	**Scientific (%)**	**Professional (%)**	**Hybrid (%)**	**D2 EXPLICIT**
Literature Review	9%	33%	0%	10%	50%
Case Study	9%	33%	11%	0%	100%
Quantitative	23%	0%	33%	20%	60%
Qualitative	23%	33%	22%	20%	100%
Mixed	23%	0%	0%	50%	60%
Conceptual	13%	0%	33%	0%	100%
Total	100%	100%	100%	100%	

Table 5 shows that literature reviews and case studies achieve comprehensive thematic coverage (100% across D3 dimensions), reflecting their capacity for holistic field representation. Quantitative approaches equally sustain full engagement (100%), likely driven by empirical measurement of both risks and benefits. Qualitative and mixed-methods analyses indicate minor risk deficits (D3-GOV RISK: 80%), with perfect operational coverage (100%). Conceptual analyses exhibit the greatest selectivity, covering transformative claims universally (100%) yet substantially underrepresenting governance risks (67%) and operational barriers (67%).

This patterned variation substantiates the methodological design's structuring role: abstract conceptual work mirrors the operational bias of professional habitus, prioritizing AI's legitimacy (D3-TRANSFORM) over critical problematization. Conversely, methodologies requiring empirical or interpretive engagement, literature reviews, case studies and quantitative methods enable more comprehensive field mapping, empirically grounding the framework's habitus-doxa dialectic.

Table 5. D3 Theme Coverage by Methodology (n=22)

METHODOLOGY	D3-TRANSFORM (%)	D3-GOV RISK (%)	D3-OPERATIONAL (%)
Literature Review	100%	100%	100%
Case Study	100%	100%	100%
Quantitative	100%	100%	100%
Qualitative	100%	80%	100%
Mixed Methods	100%	80%	100%
Conceptual	100%	66.70%	66.70%

5. Discussion

The empirical patterns identified through Bourdieusian content analysis confirm the study's theoretical framework, demonstrating how academic discourse on AI-auditing integration constitutes more than technical debate; it reveals the structural tensions inherent to the field-habitus dialectic (Shenkin & Coulson, 2007). Rather than evidencing an irreconcilable theory-practice divide, these findings illuminate a field in dynamic reconfiguration, in which hybrid discursive formations emerge as dominant mediators, alongside substantial recognition of underlying structural tensions. The following sections develop these interpretations in relation to the study's research questions.

5.1. Habitus tensions and the logic of practice

Professional-oriented discourses demonstrate the auditing field's deepening structuration by what Bourdieu terms the “logic of practice” (2000). Where scientific discourse sustains ethical deliberation and normative model-building, professionally oriented texts consistently subordinate such reflections to temporal imperatives and organizational efficiency. This practical orientation manifests through unqualified endorsement of AI's transformative capacity alongside operational pragmatism, confirming how material constraints (i.e., demands for immediate technological returns) circumscribe deeper epistemological engagement. Consequently, AI appears predominantly framed as an instrument of enhanced efficiency rather than a catalyst for fundamental disciplinary inquiry.

5.2. The scholastic fallacy and symbolic risk

Systematic recognition of the scholastic fallacy across analyzed texts coexists with markedly uneven implementation. Professional-oriented discourses exhibit selective engagement with this awareness, frequently universalizing operational models while

minimizing the contextual complexities of practical reason (Bourdieu, 2000). Such selectivity carries risks of symbolic violence, in which scholarly authority may unwittingly legitimize entrenched power structures and efficiency-driven agendas beneath the veneer of technological neutrality (Malsch et al., 2011). AI's "black box" opacity compounds this disconnect; practitioners acknowledge erosion of decision-making control even as academic discourse privileges idealized governance architectures detached from implementation realities (Shenkin & Coulson, 2007).

5.3. AI as symbolic capital and field permeability

The universal adoption of a transformative framing confirms AI's constitution as field-specific symbolic capital. Within scientific discourse, AI confers scholarly prestige and normative authority; professional-oriented texts position it as an indispensable competitive advantage in digitized markets. This cross-sphere circulation reveals profound structural permeability between academic reflection and practical domains.

Such permeability extends the established practice of accounting scholars of converting theoretical capital into strategic interventions (Antonelli & Rossi, 2025). While the analyzed academic texts themselves articulate distinct habitus orientations, they simultaneously evidence real-world circulation: academic authors transfer symbolic authority into professional practice through conceptual framing, while practitioners' operational concerns (algorithmic opacity, efficiency demands) reciprocally shape scholarly analysis (Lehner et al., 2022).

Far from an isolated "ivory tower", the academic field emerges thoroughly interwoven with professional and institutional interests. Contestation over the effective auditing definition, whether efficiency-driven transformation or ethically-grounded reconfiguration, sustains perpetual struggle for interpretive dominance across both spheres

5.4. Methodological homologies and hybrid adaptation

The analysis shows a clear connection between methodological choices and professional orientations. Studies with a professional focus tend to use quantitative or conceptual approaches that prioritize efficiency, structure, and measurable results. In contrast, academic-oriented papers often rely on interpretive methods such as case studies or literature reviews, which encourage distance from immediate practice and promote critical reflection.

Hybrid studies combine elements of both, using mixed-method designs that integrate quantitative and qualitative approaches. This flexibility allows researchers to connect theoretical perspectives with the practical realities of auditing. Instead of eliminating the gap between academic and professional logics, these hybrid approaches work across it, finding partial common ground between ethical reflection and applied reasoning.

These adaptations narrow epistemological distances within the field but stop short of achieving consensus, as the underlying contest over its doxa remains unresolved. In Bourdieusian terms, doxa refers to the taken-for-granted assumptions that define what counts as legitimate knowledge within a field, thereby structuring the boundaries of what can be thought and said without question. Here, the divergent methodological commitments signal competing visions over what constitutes valid AI-auditing scholarship, preventing any single habitus orientation from fully imposing its epistemic authority as the field's unquestioned orthodoxy.

6. Conclusions

The Bourdieusian field–habitus analysis shows that AI functions as a contested form of symbolic capital shaping different ways of talking about its role in auditing research (2019–2024). The professional habitus emphasizes efficiency and tends to downplay theoretical reflection, confirming the expected gap between theory and practice (Bourdieu, 2000). The predominance of hybrid orientations suggests a field in transition, where academic and practical approaches increasingly converge, reducing though not resolving underlying epistemological differences.

These findings support the framework's main propositions and show that AI functions both as a technical tool and as a taken-for-granted framework mediating the relationship between theoretical reflection and practical demands. Future research should examine how habitus evolves over time and compare the formation of such frameworks across international contexts to better understand the epistemological transformation of external auditing. In addition, analyzing training curricula as sites of habitus reproduction could reveal how professional education either sustains or challenges existing field dynamics, contributing to a deeper and theoretically grounded understanding of AI's role in reshaping the epistemic foundations of auditing.

Regarding limitations, the study relies on a systematic review of academic discourse from 2019-2024, which constrains the Bourdieusian analysis in several ways. First, the corpus

(n=22) captures only published scholarship, potentially underrepresenting emergent professional practice insights circulating through practitioner reports, industry conferences, or proprietary firm knowledge that could reveal alternative habitus configurations. Most of the research reviewed centers on AI-auditing integration within established academic journals, leaving underexplored how peripheral field agents (smaller firms, non-Western contexts) construct AI as symbolic capital. Additionally, the focus on English-language publications limits visibility into jurisdiction-specific doxa formation, while the rapid evolution of AI technologies since 2024 risks dating the analysis of field/habitus dialectics. These constraints complicate establishing the full generalizability of habitus patterns and their evolution across the field's global and temporal heterogeneity.

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Supplementary material

Table 1. Most Recurrent Journals, Their Total Citations, and Average Citations per Article.

Source	Papers	Cites	Mean
International Journal of Accounting Information	3	221	74
Review of Accounting Studies	2	93	47
Journal of Open Innovation: Technology,	2	20	10
Technological Forecasting and Social Change	1	225	225
ACRN Journal of Finance and Risk Perspectives	1	87	87
Accounting, Auditing and Accountability	1	50	50
WSEAS Transactions on Business and	1	37	37
Journal of Organizational Change Management	1	34	34
Journal of Risk and Financial Management	1	33	33
Research Policy	1	26	26
Australian Journal of Management	1	24	24
Universal Journal of Accounting and Finance	1	14	14
Contemporary Accounting Research	1	7	7
Accounting Research Journal	1	4	4
Business Strategy and the Environment	1	2	2
Managerial Auditing Journal	1	2	2
Pacific Accounting Review	1	1	1
International Review of Financial Analysis	1	0	0

Table 2. Countries publishing articles, their total citations, and the average number of citations per article for each journal.

Country	Papers	Cites	Mean
United States	3	135	45
United Kingdom	2	182	91
Finland	2	137	69
Italy	2	38	19
United Arab Emirates	2	38	19
Oman	2	18	9
China	2	2	1
France	1	225	225
Czech Republic	1	37	37
Japan	1	26	26
Australia	1	24	24
Saudi Arabia	1	15	15
India	1	2	2
Vietnam	1	1	1

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Sporting Success and Accounting Profitability in Professional Football: Evidence from a Panel Data Model

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ABSTRACT

This study examines the relationship between sporting success and accounting profitability in Spanish professional football. Using a sample of 14 clubs that have competed recurrently in the Spanish First Division over the period 2009–2010 to 2023–2024, we investigate whether sporting performance translates into higher economic profitability. Sporting success is measured through a continuous index that integrates performance in the domestic league, the national cup, and European competitions allowing for a more nuanced and continuous representation of competitive outcomes compared to traditional discrete measures. Employing panel data models with club and season fixed effects, the results show that sporting success has a positive and statistically significant impact on profitability when measured contemporaneously, while this effect weakens when sporting success is introduced with a temporal lag highlighting the short-term nature of the relationship. Importantly, the analysis is correlational in nature and does not aim to establish causality, given the observational structure of the data. These findings suggest that the economic benefits derived from sporting performance are primarily recognised in the short term and tend to be rapidly absorbed by higher operating costs. The study contributes to the literature on sports economics and financial accounting providing empirical evidence on the short-term nature of the association between sporting performance and profitability, proposing a composite and continuous measure of sporting success, and clarifying the correlational nature of this relationship within the institutional context of Spanish professional football.

KEYWORDS

Sporting success; profitability; professional football; panel data; sports accounting; financial sustainability

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1. Introduction

Professional football has become one of the most economically significant sports industries in Europe, characterised by high levels of revenue, strong media exposure, and increasing attention from scholars in accounting and finance. However, unlike other business sectors, football clubs have not historically pursued profit maximisation as their primary objective. Since the seminal work of Sloane (1971), the literature has documented that professional football clubs tend to behave as organisations oriented towards the maximisation of sporting success, even at the expense of financial profitability (Franck, 2010; Dermit-Richard *et al.*, 2024).
This logic is particularly evident in Spanish professional football, where competitive pressure, the threat of relegation, and participation in European competitions create strong incentives for intensive investment in sporting talent. Although on-field success is often accompanied by increases in revenue—stemming from broadcasting rights, prize money, and higher commercial income, these additional resources do not necessarily translate into sustained improvements in accounting profitability. The high rigidity of costs, especially player wages and amortisation of player registrations, tends to absorb the revenues associated with sporting performance rapidly, thereby limiting their medium-term economic impact.

Despite the growing academic interest in sports economics, empirical evidence on the relationship between sporting success and accounting profitability remains limited and, in some cases, ambiguous. While numerous studies document a positive relationship between sporting performance and revenues, there is less consensus regarding its effect on clubs' economic profitability (Barajas *et al.*, 2005; García-del-Barrio & Szymanski, 2009; Alabi *et al.*, 2024). Moreover, much of the existing literature relies on either discrete measure of sporting success, isolated competition outcomes, or relatively short observation period, which makes it difficult to capture the intensity and persistence of competitive performance over time (Serrano *et al.*, 2023; Alabi *et al.*, 2024).
This lack of consensus raises an important question: to what extent does sporting success translate into measurable accounting returns, beyond its well-documented effect on revenues? While a positive association may be expected a priori, the extent, timing, and persistence of this relationship remain empirically unclear, particularly in environments characterised by high-cost rigidity and strong incentives to reinvest revenues into sporting performance.

This study contributes to the literature by empirically analysing the relationship between sporting success and accounting profitability in Spanish professional football over a broad

fifteen-season period (2009–2010 to 2023–2024). To this end, we construct a continuous index of sporting success that integrates performance across the main official competitions and employ panel data models with club and season fixed effects. This approach allows us to assess whether the economic impact of sporting success materialises immediately or exhibits persistence over time.

In doing so, the paper makes three main contributions. First, it provides empirical evidence on the short-term versus persistent nature of the association between sporting success and accounting profitability. Second, it introduces a composite and continuous measure of sporting success that captures the multidimensional nature of competitive performance. Third, it explicitly frames the analysis as correlational, thereby offering a more cautious interpretation of the relationship between sporting and financial outcomes.

Unlike causal approaches that rely on exogenous shocks or natural experiments, the present study focuses on identifying robust associations within a panel data framework, controlling for unobserved heterogeneity across clubs and time.

The remainder of the paper is structured as follows. Section 2 describes the institutional background of Spanish professional football. Section 3 reviews the relevant literature and develops the research hypotheses. Section 4 presents data, variable construction, and empirical design. Section 5 reports the empirical results, and Section 6 concludes with a discussion of the main implications and limitations of the study.

2. Institutional Background

2.1. Business Model and Objectives of Football Clubs

European professional football has developed into a sector of substantial economic magnitude. Recent industry reports indicate that European football has continued to expand economically, driven by sustained growth in broadcasting revenues, commercial activities, and international fan engagement (Deloitte, 2025). Since the 1990s, numerous analysts have noted that football has "evolved from a sport into a business", given the growing importance of revenues and increasing academic interest in its economic and financial analysis (Deloitte, 2020; Sloane, 1971). However, unlike other industries, profit maximisation has not historically been the primary objective of many European football clubs (Sloane, 1971). In contrast to the North American sports model—where financial profitability typically takes precedence—European club owners have traditionally prioritised sporting success (wins, championships, and prestige) over pure economic returns (Sloane, 1971; Rottenberg, 1956). This mindset, described in the literature as utility maximisation rather than profit maximisation, implies that clubs tend to reinvest revenues or even spend beyond their financial means in pursuit of sporting glory, rather than distributing profits to shareholders, thereby prioritizing competitive performance over financial returns (Sloane, 1971). Indeed, aggressive pursuit of sporting success has frequently been shown to undermine profitability: allocating excessive resources to improving on-field performance can erode profit margins and weaken clubs' financial solvency (Sloane, 1971; Dermit-Richard, 2019). An illustrative example is provided by

several English clubs that went public: after raising capital through initial public offerings, they achieved sporting improvements—such as increased wins and high-profile player signings—but experienced declines in share prices as the funds were channelled into rising transfer fees and wage costs, ultimately generating long-term financial difficulties (Renneboog & Vanbrabant, 2000).

Because of this emphasis on sporting success over profit generation, revenue growth has often failed to translate into net profits (Deloitte, 2020; UEFA, 2012). Over recent decades, many clubs have engaged in a "revenue race" without converting higher cash inflows into sustainable accounting profits, thereby compromising their long-term financial sustainability (UEFA, 2012; Dermit-Richard, 2019). A growing body of evidence documents episodes of financial fragility across major European leagues. For example, towards the end of the 2000s, severe structural financial weaknesses were identified among clubs in the Spanish league, with similar problems observed in Italy's Serie A (UEFA, 2012). Likewise, in the early 2000s, several English Premier League clubs spent far beyond their means to remain competitive, accumulating unsustainable debt levels that threatened their financial stability (UEFA, 2011; UEFA, 2012). Comparable patterns have been identified in other European leagues—such as the Greek league—where clubs' financial statements reveal alarming levels of indebtedness and persistent losses, pointing to a broader pattern of financial distress within the sector (Fan *et al.*, 2023).

Ownership structure and governance arrangements also play an important role in shaping clubs' financial performance. Comparative studies suggest that clubs controlled by single private owners tend to exhibit weaker financial indicators—such as higher leverage and lower returns—than those with more dispersed ownership structures or those listed on stock exchanges (Renneboog & Vanbrabant, 2000; Dermit-Richard, 2019). Listed clubs, which are subject to greater public scrutiny and stricter transparency requirements, generally display stronger financial discipline, whereas some clubs under individual ownership have assumed elevated financial risks in pursuit of sporting achievements, thereby deteriorating their accounting position (Renneboog & Vanbrabant, 2000; Dermit-Richard, 2019). Overall, this institutional heterogeneity highlights the diversity of economic organisation among European professional football clubs and illustrates how differing objectives—sporting versus financial—and governance models can significantly influence their economic outcomes (Dermit-Richard *et al.*, 2024).

2.2. Revenues Linked to Sporting Performance

The revenues of a professional football club typically originate from several main sources: broadcasting rights, sponsorship and advertising, matchday revenues (ticket sales), merchandising, and competition prize money (Deloitte, 2020; UEFA, 2012). All of these revenue streams are, to a greater or lesser extent, linked to the team's sporting performance (UEFA, 2012). For instance, broadcasting contracts and competition prize distributions allocate higher amounts to clubs that achieve better league positions or advance to later stages of international tournaments; likewise, sporting success is usually

associated with higher stadium attendance, increased season-ticket subscriptions, and greater attractiveness for commercial sponsors (Deloitte, 2020; UEFA, 2012). Empirical evidence confirms this positive relationship between sporting performance and revenues: stronger performance in domestic competitions, as well as participation in European tournaments—particularly the UEFA Champions League—is associated with significant increases in clubs' annual revenues (Barajas *et al.*, 2005; Alabi *et al.*, 2024). In other words, success on the pitch tends to reinforce financial performance by enabling clubs to access higher income streams from broadcasting, prize money, and fan engagement, thereby strengthening their overall revenue-generating capacity (Serrano *et al.*, 2023).

This dependence of revenues on sporting performance also tends to reinforce disparities between clubs. The most successful teams in each league capture a disproportionately large share of total industry revenues, allowing them to sustain larger budgets (UEFA, 2012; García-del-Barrio & Rossi, 2020). For example, the distribution of UEFA Champions League revenues rewards clubs reaching the later stages in a highly non-linear manner: payments for match victories, progression through rounds, and market pool allocations are substantially higher for semi-finalists and finalists, thereby widening the gap relative to clubs eliminated in earlier rounds (UEFA, 2012). The literature suggests that this mechanism generates a virtuous cycle—successful clubs receive more revenues and can reinvest in talent, thereby consolidating their dominance—while simultaneously widening financial disparities across clubs (García-del-Barrio & Rossi, 2020). Indeed, it has been observed that the European competition format, together with broadcasting revenue allocation, tends to favour historically large clubs, which regularly progress further and capture larger rewards, thereby increasing their cumulative financial advantage (García-del-Barrio & Rossi, 2020; Serrano *et al.*, 2023).

From the perspective of the present study, these findings suggest that sporting success constitutes an important driver of clubs' revenue generation, although whether these additional revenues ultimately translate into higher accounting profitability remains an open empirical question. This reality compels clubs with sporting ambitions to pursue success as a means of increasing revenues, reinforcing the close link between on-field performance and economic outcomes (Alabi *et al.*, 2024).

2.3. *Operating Costs, Rigidity, and Financial Risk*

The most significant operating cost for a football club is typically squad remuneration: player and coaching staff wages account for the largest share of annual expenditure, together with amortisation of player registration rights acquired through transfers (UEFA, 2012; Alabi *et al.*, 2024). This cost structure is notably rigid in the short term, as guaranteed contracts prevent clubs from rapidly reducing their wage bill even when revenues decline (UEFA, 2012; Dermit-Richard, 2019). The specialised literature highlights that the overwhelming weight of wages—stemming from an "arms race" to sign top talent—is one of the primary causes of chronic financial instability in football clubs (Alabi *et al.*, 2024). In practice, many clubs allocate any increase in revenues to improving the quality (and cost) of their playing squads, resulting in a weak relationship

between revenues and profits (Franck, 2010; Alabi *et al.*, 2024). Indeed, it has been observed that even the substantial growth in broadcasting and commercial revenues over recent decades has not translated into proportional improvements in profitability, as clubs tend to spend these additional resources on higher wages and other operating costs (Deloitte, 2020; UEFA, 2012; Alabi *et al.*, 2024). In other words, costs tend to rise in tandem with revenues, preventing the generation of sustained profits and increasing financial fragility in the event of sporting setbacks (Dermit-Richard *et al.*, 2024). Consequently, improvements in sporting performance do not necessarily imply proportional improvements in accounting profitability.

Cost rigidity exposes clubs to substantial financial risk when sporting performance deteriorates. Underperformances such as failure to qualify for European competitions, finishing in the lower part of the league table, or suffering relegation typically result in a sharp decline in revenues that cannot be offset in the short term through cost reductions, leading to significant economic losses (UEFA, 2012; Alabi *et al.*, 2024). For example, a historical study of the English league (1982–2010) showed that finishing in the lower half of the table was typically associated with financial losses, whereas only top-ranked teams achieved meaningful accounting profits (UEFA, 2012). Furthermore, the promotion and relegation system inherent to the European football model has been identified as a factor that increases insolvency risk: the sporting threat of relegation to a lower division—with the corresponding loss of broadcasting and sponsorship revenues—introduces much greater financial volatility than in closed leagues without relegation (Alaminos *et al.*, 2019; UEFA, 2012). This systemic risk has been evident in numerous cases of European clubs that, following relegation or exclusion from major tournaments, faced severe difficulties in meeting their financial obligations (UEFA, 2012; Alaminos *et al.*, 2019).

In response to recurrent operating deficits, many clubs have resorted to debt financing, resulting in fragile financial structures (UEFA, 2012). It is therefore unsurprising that accounting ratios frequently reveal high leverage levels alongside weak profitability indicators (low ROA/ROE) in these entities (UEFA, 2012; Fan *et al.*, 2023). Elevated leverage and insufficient cash generation increase vulnerability to sporting shocks (Alaminos *et al.*, 2019). Indeed, football bankruptcy prediction models identify excessive indebtedness combined with low liquidity as key precursors of severe financial distress among professional clubs (Alaminos *et al.*, 2019). Studies of past insolvencies suggest that sharp revenue declines linked to poor sporting performance often act as the trigger for bankruptcy, particularly when clubs already operate with weak financial structures (Alaminos *et al.*, 2019). In summary, rigid cost structures, combined with the inherently uncertain nature of sporting performance (injuries, performance streaks, open competition), result in a significantly elevated financial risk profile for many football clubs (Alabi *et al.*, 2024). This institutional context provides a plausible explanation for why the relationship between sporting success and accounting profitability may be considerably weaker than the relationship between sporting success and revenues.

2.4. *Financial Regulation in European Football*

The scale of financial problems in football clubs led to the implementation of specific regulatory frameworks over the past decade. An important milestone was the 1995 Bosman rule, which liberalised the player labour market within the European Union (Hoey, 2021). By eliminating transfer restrictions for out-of-contract players, the Bosman case strengthened players' bargaining power and facilitated the movement of talent towards clubs with greater financial resources, thereby increasing competitive imbalance and exerting upward pressure on wages at large clubs (Hoey, 2021). This legal change inaugurated a new era in the economics of European football, raising player retention costs for training clubs and indirectly contributing to widespread wage inflation across major leagues (Hoey, 2021).

Subsequently, in response to escalating expenditures and debt levels during the 2000s, UEFA introduced the Financial Fair Play (FFP) regulations from 2012 onwards as a pan-European framework for financial discipline (UEFA, 2012). FFP requires clubs to balance their operating accounts, that is, not to spend more than they earn from football-related activities through budgetary constraints linked to recurring revenues and the possibility of sanctions in cases of non-compliance (UEFA, 2012). The regulation was introduced in response to alarming signals: immediately prior to its implementation, the 235 clubs participating in UEFA competitions incurred expenses approximately 15% higher than their revenues, an unsustainable situation that threatened the viability of the European football system (UEFA, 2012). The new regime represented a substantial institutional shift, aiming to steer clubs towards more prudent management and to reduce systemic financial collapse risk (UEFA, 2012; Alabi *et al.*, 2024).

Alongside UEFA-level regulation, many national leagues strengthened their own financial controls. In Spain, for example, LaLiga introduced squad cost limits based on clubs' expected revenues, while in France the DNCG (Direction Nationale du Contrôle de Gestion) annually supervises club finances and can impose sanctions ranging from transfer restrictions to administrative relegation in cases of severe imbalance (LaLiga, n.d.; Dermit-Richard, 2019). These measures aim to prevent short-term payment defaults and promote sustainability, although they may also generate unintended sporting consequences. For example, imposing sporting sanctions for financial reasons can, paradoxically, aggravate a club's economic difficulties by depriving it of future revenues (for instance, through relegation) (Dermit-Richard, 2019).

The academic literature debates the effectiveness and unintended consequences of these regulatory frameworks. Some studies suggest that after several years of FFP implementation, the competitive-financial gap between large and small clubs has not narrowed and may even have widened in certain leagues (García-del-Barrio & Rossi, 2020; Serrano *et al.*, 2023). This outcome is attributed to the fact that financially powerful clubs, with historically higher revenues, were better positioned to comply with the rules and continue dominating the post-FFP landscape, while mid-sized clubs face tighter investment constraints (García-del-Barrio & Rossi, 2020; Serrano *et al.*, 2023). As a

result, several authors have proposed more far-reaching structural reforms inspired by the North American sports model to address European football's financial problems. These include the potential introduction of salary caps and closed leagues (without promotion and relegation) to guarantee long-term revenue stability (Dermit-Richard, 2019). However, implementing such measures in the European context is highly complex due to institutional differences, sporting traditions, and possible unintended side effects (e.g., cost pressures shifting elsewhere or reduced competitive incentives) (Alabi *et al.*, 2024).

Consequently, financial regulation has become an essential component of the institutional environment in which European football clubs operate, shaping not only their financial policies but also the relationship between sporting ambition and economic sustainability. Overall, the balance between club self-regulation and externally imposed regulation remains a subject of debate, with the objective of reconciling sporting passion with financial responsibility while preserving competition integrity and avoiding crises like those experienced in the recent past (Serrano *et al.*, 2023).

2.5. *Effects of Sporting Success and Failure on Club Finances*

The link between sporting performance and clubs' accounting outcomes is neither linear nor unidirectional, but rather bidirectional and nuanced. On the one hand, sporting success typically generates favourable financial effects: higher revenues from prize money and broadcasting, increased matchday income and merchandising sales, growth in the fan base, and enhancement of the club's brand value (Deloitte, 2020; UEFA, 2012). In principle, these factors should translate into improved economic results. On the other hand, achieving sporting success requires substantial investment—in talent acquisition, infrastructure, and performance-related bonuses—which frequently absorb a large share of these additional revenues (UEFA, 2012; Alabi *et al.*, 2024). In practice, many successful clubs barely break even or generate only modest margins, as they reinvest heavily to maintain competitiveness (UEFA, 2012). Recent research confirms this tension: the pursuit of sporting success can undermine profitability and financial sustainability, while conversely, strong sporting performance does not guarantee improved profitability unless accompanied by prudent financial management (Alabi *et al.*, 2024). In other words, managing clubs exclusively to maximise on-field performance often entails sacrificing financial stability, particularly when owners or executives are willing to incur losses to win trophies (Sloane, 1971). This phenomenon helps explain why clubs that win championships or achieve promotion may subsequently experience financial difficulties, having compromised their financial health in the process (UEFA, 2012; Alaminos *et al.*, 2019).

Another perspective on the economic consequences of sporting success or failure is provided by the stock market behaviour of the few listed football clubs. Studies of share price movements reveal an asymmetric reaction to sporting results: major defeats typically lead to significant declines in share prices, whereas victories generate much smaller (or even negligible) positive valuation effects (Renneboog & Vanbrabant, 2000; Scholtens & Peenstra, 2009). From a financial standpoint, losses "hurt" more than wins

"benefit", reflecting that sporting disappointment immediately erodes investor confidence in a club's future revenue- and profit-generating capacity (Scholtens & Peenstra, 2009). Furthermore, evidence from England shows that following initial public offerings, some clubs experienced sporting improvements alongside declining share prices, as raised capital was allocated to transfers and wages in pursuit of titles rather than to balance sheet strengthening (Renneboog & Vanbrabant, 2000). This reinforces the notion that sporting success achieved at any cost may not be positively valued by markets if it undermines long-term profitability and financial sustainability (Renneboog & Vanbrabant, 2000).

Finally, there are specific accounting implications associated with sporting success or failure, particularly in relation to the treatment of players as assets. Players acquired by a club are recognised as intangible assets (registration rights) measured at acquisition cost and amortised over the duration of their contracts, whereas players developed through youth academies are not capitalised on the balance sheet (Amir & Livne, 2005; Oprean & Oprisor, 2014). This generates distortions in financial reporting: a club may possess a squad of high market value due to sporting success and player appreciation, yet this value is not fully reflected in the accounting assets reported on the balance sheet (Amir & Livne, 2005; Oprean & Oprisor, 2014). Conservative accounting standards imply that only when a player is sold and a capital gain is realised does sporting success translate into recognised accounting income. Conversely, severe sporting failure—such as relegation—may force a club to sell players below their book values or to recognise impairment losses on player registration rights, thereby reflecting the negative consequences of adverse sporting performance in the financial statements (Amir & Livne, 2005; UEFA, 2012). In sum, sporting success tends to strengthen clubs' finances in the long run by boosting revenues and market value, but it also presents challenges in managing those resources effectively; symmetrically, sporting failure exerts immediate and sometimes dramatic pressure on clubs' accounts, increasing financial risk and testing institutional and accounting resilience (Alabi *et al.*, 2024).

Importantly, this dual mechanism suggests that the relationship between sporting success and accounting profitability is theoretically ambiguous: while higher performance is expected to increase revenues, the concurrent rise in operating costs and reinvestment incentives may offset these gains. Consequently, sporting success cannot be assumed to translate automatically into higher accounting profitability. As a result, the net effect on accounting profitability is ultimately an empirical question rather than a trivial outcome, which further motivates the analysis conducted in this study.

3. Literature Review and Hypotheses

3.1. Accounting Outcomes under Performance Pressure

European professional football is characterised by a structural tension between the pursuit of sporting success and financial sustainability. From an economic perspective, numerous studies have documented that football clubs tend to prioritise the maximisation of sporting performance over economic profitability, operating according to a logic of win

maximisation rather than profit maximisation (Sloane, 1971; Storm & Nielsen, 2012). This orientation has historically contributed to persistent financial imbalances, in a context in which many European leagues have operated under soft budget constraints, allowing clubs to accumulate losses and debt without facing immediate bankruptcy, often supported by owners, creditors, or external interventions (Storm & Nielsen, 2012).
Within this environment, pressure arising from sporting outcomes—whether to achieve top positions or to avoid relegation—significantly shapes clubs' financial and accounting decisions. The general accounting literature shows that under conditions of high-performance pressure and sanction risk, managers may resort to discretionary practices in financial reporting (Healy & Wahlen, 1999). In professional football, this dynamic is further reinforced by the existence of sport-specific regulatory frameworks and by the high public visibility of both financial and sporting results.

A growing body of research has examined how regulations such as UEFA's Financial Fair Play (FFP) and national economic control mechanisms have altered clubs' accounting incentives. Although these regulations have contributed to improvements in certain aggregate indicators of financial discipline, they have also generated incentives for the strategic use of accounting practices to formally comply with regulatory requirements without undermining sporting competitiveness (Franck, 2014; Dimitropoulos *et al.*, 2016). Empirical studies document an increased use of discretionary accrual adjustments following the introduction of FFP across several European leagues (Dimitropoulos *et al.,* 2016).

In the Spanish context, the implementation of LaLiga's Economic Control Regulation introduced strict spending limits and solvency requirements, creating an environment of heightened formal discipline. Nevertheless, recent literature suggests that such regulatory frameworks may coexist with opportunistic accounting practices, especially among clubs facing tighter financial constraints or a high dependence on sporting performance (Amir & Livne, 2005; Urdaneta-Camacho *et al.*, 2025). This institutional setting provides a particularly suitable context for analysing whether sporting success is ultimately reflected in clubs' accounting performance. Overall, this evidence highlights that the accounting environment of professional football is strongly shaped by competitive pressure and by the interaction between sporting and financial objectives, making the relationship between sporting success and accounting profitability an issue of both theoretical and practical relevance.

3.2. *Sporting Performance as an Exogenous Shock*

From an accounting and management perspective, sporting performance can be interpreted as a key determinant of clubs' economic and financial outcomes. Although sporting outcomes are influenced by clubs' strategic decisions—such as player recruitment, wage expenditure and managerial quality—they also contain an important degree of uncertainty arising from factors such as injuries, refereeing decisions, fixture difficulty, individual player performance, and competitive dynamics (Szymanski & Kuypers, 1999).

Accordingly, this study does not treat sporting success as an exogenous shock. Rather, it considers sporting performance as a relevant competitive outcome that is closely associated with clubs' financial performance, while recognising that both may be jointly influenced by underlying strategic and economic decisions.

The literature has extensively documented that specific sporting events—such as promotion, relegation, or qualification for European competitions—generate abrupt changes in revenues from broadcasting rights, matchday attendance, sponsorships, and brand visibility, thereby producing economically meaningful consequences for football clubs (Barajas *et al.*, 2005; Alaminos *et al.*, 2019).

Numerous studies report a positive relationship between sporting performance and various dimensions of economic performance, particularly revenues and brand value (Szymanski & Kuypers, 1999; Barajas *et al.*, 2005). However, existing evidence also suggests that this relationship does not automatically translate into improvements in accounting profitability, due to cost rigidity and clubs' tendency to reinvest additional resources into sporting talent (Storm & Nielsen, 2012; Franck, 2014).

Previous studies have also documented that unexpected sporting outcomes influence investors' expectations, clubs' revenues and subsequent financial decisions. For example, Edmans *et al.* (2007) show that unexpected defeats negatively affect stock market returns, while other studies highlight that sporting performance has important implications for clubs' financial policies and long-term economic outcomes (Alaminos *et al.*, 2019). Taken together, these studies suggest that sporting performance affects several dimensions of clubs' economic activity, although the magnitude and persistence of its effect on accounting profitability remain uncertain.

In line with this literature, the empirical analysis in this study does not aim to establish a causal relationship between sporting success and accounting profitability, but rather to document and quantify their statistical association within a panel data framework. This distinction is important, as it acknowledges potential endogeneity concerns and avoids overstating the interpretation of the estimated coefficients. Consequently, the estimated coefficients should be interpreted as evidence of statistical association rather than causal effects.

3.3. *Hypotheses Development*

The relationship between sporting performance and the economic performance of professional football clubs has been widely examined in the sports economics and management literature. Prior research shows that football clubs often prioritise sporting success over profit maximisation, operating under a win-maximisation logic rather than a purely financial objective (Sloane, 1971; Szymanski & Kuypers, 1999). Within this framework, sporting performance represents a central element of the professional football business model.

A substantial body of research shows that sporting success is positively associated with clubs' revenues through higher broadcasting income, competition prizes, stadium attendance, and commercial attractiveness for sponsors (Barajas *et al.*, 2005; Szymanski & Kuypers, 1999). However, evidence regarding its impact on accounting profitability is less conclusive. The high rigidity of costs, particularly player wages and amortisation of player registrations, tends to absorb the additional revenues generated by sporting success, thereby limiting their translation into sustained economic profits (Franck, 2014; Storm & Nielsen, 2012).

Taken together, these arguments suggest the coexistence of two opposing mechanisms: on the one hand, sporting success enhances revenue generation; on the other, it induces higher operating costs through increased investment in talent. As a result, the net effect on accounting profitability is theoretically ambiguous and ultimately an empirical question. Consequently, although a positive association between sporting success and profitability is expected, its magnitude and persistence cannot be inferred a priori and require empirical verification.

This ambiguity is particularly relevant in the context of professional football, where short-term financial gains may coexist with limited persistence due to cost dynamics and reinvestment incentives. Accordingly, the objective of this study is not to establish a causal relationship, but rather to examine whether sporting success is systematically associated with accounting profitability after controlling for club-specific and time-specific effects.

Based on this theoretical framework and the existing empirical evidence, the following main hypothesis is proposed:

H1: Sporting success is positively associated with a club's accounting profitability.

4. Research Design

4.1. *Sample and Data*

The sample consists of professional football clubs that have competed in the Spanish First Division between the 2009–2010 and 2023–2024 seasons, covering fifteen consecutive years. The final sample includes 14 clubs for which complete and homogeneous accounting information is available and that have participated recurrently in the top tier of Spanish professional football. This selection criterion allows for the construction of a stable and consistent panel dataset, ensuring intertemporal comparability of both accounting and sporting variables and avoiding distortions associated with frequent entry and exit of clubs with incomplete information. Moreover, the balanced panel facilitates the identification of within-club variation over time, which is consistent with the fixed-effects methodology adopted in the empirical analysis. At the same time, the sample exhibits substantial heterogeneity in terms of size, sporting performance, and financial condition. The composition of the sample is reported in Table A1 in the Appendix.

Financial information is obtained from the Orbis database, which is widely used in the accounting and finance literature and provides standardised financial statements at the entity level. From this database, we extract the main economic and financial variables used in the empirical analysis, including net income, total assets, operating revenues, and total liabilities.

Sporting information is drawn from official seasonal league standings and publicly available records of national and international competitions, collected through web scraping techniques and manually verified. These data include the final league position, performance in the domestic cup competition, and participation and progression in European competitions. The combination of financial and sporting data allows for the construction of a longitudinal club–season panel suitable for panel data econometric analysis with fixed effects.

4.2. *Variables*

4.2.1 Measurement of $Sporting\ Success$

Sporting performance for each club and season is measured using a continuous index of sporting success, designed to capture annual competitive performance in an integrated manner across the main official competitions. In contrast to discrete measures of sporting outcomes, this index is constructed from continuous performance indicators, allowing for greater variability in sporting outcomes and reducing the arbitrariness associated with ex ante weighting of milestones.

While no single standard measure of sporting success exists in literature, prior studies have used both individual indicators and composite measures. In this study, we construct a composite index to capture the multidimensional nature of sporting performance in a consistent and comparable manner across clubs and seasons. The use of a composite measure is particularly appropriate because the objective of this study is to evaluate clubs' overall sporting performance during a season, rather than the isolated contribution of individual competitions. Analysing league, domestic cup and European competitions separately would require multiple specifications and would not adequately capture the overall competitive achievement of each club. The composite index therefore provides a more parsimonious and comprehensive measure of annual sporting success while ensuring comparability across clubs and seasons.

The $sporting\ success$ index combines information from four key dimensions of competitive performance: (i) final position in the domestic league, (ii) performance in the national cup competition, (iii) participation and progression in the UEFA Champions League, and (iv) participation and progression in the UEFA Europa League. Each dimension is transformed into a normalised score on a common scale ranging from 0 to 100, where higher values indicate greater $sporting\ success$.

For the domestic league, sporting success is measured based on the final league position. This variable is linearly transformed into a continuous score, such that the league champion receives the maximum value and the lowest-ranked club receives the minimum value, thereby capturing the relative degree of success achieved by each club in the regular competition.

For knockout competitions, performance is measured according to the round reached by each club. As successive rounds involve a decreasing number of remaining teams, the original variable, coded according to the number of teams remaining in each stage, is transformed using a logarithmic function that reflects the depth of progression in the tournament. This transformation assigns higher values to clubs reaching later stages while maintaining continuity between successive rounds and avoiding excessive discrete jumps across phases.

Once the normalised scores for each dimension are obtained, the final sporting success index is constructed as a weighted combination of the different competitions. Greater weight is assigned to domestic league performance, given its regular nature and sustained economic relevance, while European competitions receive an intermediate weight and the national cup a lower weight, consistent with their smaller number of matches and higher degree of randomness. This weighting scheme reflects the relative sporting and economic importance traditionally attributed to each competition within European professional football. The resulting index is expressed on a continuous scale from 0 to 100, with higher values indicating a higher level of annual sporting success.

All underlying data are obtained from official league standings and verified competition records. Specifically, league position variables (L10, L11, etc.) capture the final league ranking for each season, while national cup (C10, C11, etc.) and European competition variables (UCL and U) reflect the round reached by each club in each tournament. These data are drawn from official competition records and systematically collected using web scraping techniques.

Appendix Table A2 reports the annual values of the continuous sporting success index for each club and season included in the sample, allowing for a detailed examination of its intertemporal evolution and the degree of heterogeneity across clubs.

This approach enables a more precise capture of the intensity of sporting success and its variation over time, providing a continuous and comparable measure of competitive performance suitable for econometric analysis in a panel data setting.

4.2.2 *ROA*

The primary dependent variable in the study is return on assets (ROA), calculated as net income divided by total assets. The use of ROA allows for a comparable assessment of clubs' economic performance while controlling for differences in scale and asset structure across entities, given the substantial heterogeneity that characterizes the football industry.

ROA is widely used in the accounting literature as a comprehensive measure of profitability, as it captures the efficiency with which firms generate earnings from their asset base. In the context of football clubs, it provides a consistent indicator of economic performance that is comparable across entities of different sizes.

As alternative dependent variables, employed in sensitivity analyses and additional robustness checks, we consider net income scaled by revenues as a measure of operating margin, and the level of leverage, defined as total liabilities divided by total assets. The results obtained using these alternative measures are consistent with the main findings and are reported in the robustness analysis.

4.3. *Empirical model*

The empirical analysis is based on panel data models estimated using ordinary least squares with club and season fixed effects. This approach allows us to control for unobserved, time-invariant heterogeneity specific to each club—such as size, cost structure, fan base, or ownership model—as well as for factors common to all clubs each year, including regulatory changes, macroeconomic conditions, or modifications in revenue-sharing arrangements.
The baseline specification is as follows:

$$ROA_{i,t} = \beta\, Success_{i,t} + \mu_i + \lambda_t + \varepsilon_{i,t} \qquad [1]$$

where $ROA_{i,t}$ denotes the return on assets of club i in season t, $Success_{i,t}$ is the contemporaneous continuous index of sporting success, μ_i captures club fixed effects, and λ_t represents season fixed effects. The error term $\varepsilon_{i,t}$ captures idiosyncratic disturbances.

The use of a contemporaneous measure of sporting success is motivated by the fact that a substantial share of the revenues and costs associated with sporting performance are recognised in the same accounting period in which performance occurs. Accordingly, this specification captures the immediate economic impact of sporting success on club profitability.
As an additional check, an alternative specification introduces the sporting success index with a one-season lag to assess whether the impact of sporting performance on profitability persists over time:

$$ROA_{i,t} = \beta Success_{i,t-1} + \mu_i + \lambda_t + \varepsilon_{i,t} \qquad [2]$$

In addition, this specification serves as a robustness check to account for potential timing differences in the recognition of revenues and costs associated with sporting performance. It should be noted that this lagged specification is not intended to establish a causal relationship between sporting success and accounting profitability. Rather, it examines whether the statistical association observed in the contemporaneous model persists over time.

In all estimations, standard errors are clustered at the club level to correct for potential heteroskedasticity and serial correlation within clubs over time, in line with standard recommendations in panel data analysis.

5. Results

5.1. *Descriptive Statistics*

Table 1 reports descriptive statistics for the main variables used in the empirical analysis, as well as for additional accounting variables that characterise clubs' economic and financial structure. Specifically, the table presents the mean, median, standard deviation, and minimum and maximum values for the sporting success index and a representative set of accounting variables over the sample period.

Table 1. Descriptive statistics.

Variable	N	Mean	Std. Dev.	Min	Median	Max
Success	209	36	49.50	−20.0	30.00	220.00
ROA	209	−0.003	0.10	−0.339	0.00	0.31
Revenues	209	169	207	8	85	843
Net Income	209	−1.2	44	−481.0	1	304
T. Assets	209	371	399	35	208	1620
T. Liabilities	209	310	313	50	145	1400
Leverage	209	1	0	0	1	2

Note: The table reports descriptive statistics for the main variables used in the empirical analysis. Sporting success refers to the continuous index defined in Section 4.2.1. ROA is calculated as net income divided by total assets. Revenues, net income, total assets and total liabilities are expressed in millions of euros. Leverage is defined as total liabilities divided by total assets. The total number of observations is 209 club–season observations.

The results reveal substantial heterogeneity in both sporting performance and financial conditions across the clubs analysed. The sporting success index exhibits a mean value of 35.6, a standard deviation of 49.5, and a wide range spanning from −20 to 220 points. This dispersion reflects considerable variation in competitive outcomes both across clubs and over time, consistent with the coexistence of clubs with recurrent sporting success and others more frequently exposed to poor results or relegation risk.

In terms of financial performance, return on assets (ROA) displays a mean close to zero (−0.003) and an almost zero median (0.00), indicating that, on average, clubs do not generate substantial economic returns on their asset base. The standard deviation of ROA (0.10) points to high volatility in profitability, consistent with the financial instability that characterises professional football and with the strong sensitivity of accounting results to sporting performance.

Regarding size, average revenues amount to €169 million, while total assets reach €371 million, highlighting substantial differences in economic scale among the clubs in the sample. These disparities reflect the coexistence of very large clubs with significantly smaller entities, even within the same league.

Total liabilities average €310 million, and the leverage ratio (total liabilities over total assets) displays a mean close to 0.9, confirming the presence of high levels of financial leverage. This pattern is consistent with prior evidence documenting a strong reliance on debt financing among professional football clubs, driven by cost rigidity and competitive pressure to sustain sporting performance.

Overall, the descriptive statistics confirm the existence of marked heterogeneity in both sporting and financial dimensions. This heterogeneity justifies the use of panel data models with club and season fixed effects and provides an appropriate context for interpreting the empirical results that follow.

5.2. *Correlations*

Table 2 presents the correlations between the sporting success index and a set of accounting variables representative of clubs' economic and financial conditions. Sporting success is positively correlated with return on assets (0.171) and exhibits particularly strong correlations with revenues (0.739) and club size, measured by total assets (0.694). This pattern suggests that clubs with stronger sporting performance tend to be economically larger and have greater revenue-generating capacity.

Table 2. Correlation matrix.

Variable	Success	ROA	Revenues	T. Assets	Leverage
Success	1				
ROA	0.171	1			
Revenues	0.739	0.058	1		
T. Assets	0.694	−0.008	0.942	1	
Leverage	−0.393	−0.353	−0.367	−0.332	1

Note: The table reports Pearson correlation coefficients between the sporting success index and the main accounting variables. Sporting success is a continuous measure of annual competitive performance. ROA is defined as net income divided by total assets. Revenues and assets are expressed in millions of euros, while leverage is calculated as total liabilities divided by total assets. Statistical significance levels are indicated by * $p < 0.10$, ** $p < 0.05$ and *** $p < 0.01$. Correlations are presented for descriptive purposes and do not control for unobserved heterogeneity or common time effects.

Sporting success is also negatively correlated with leverage (−0.393), indicating that, on average, clubs with better competitive outcomes tend to exhibit relatively stronger financial structures. The correlation between revenues and assets is very high (0.942), reflecting the close relationship between club size and revenue-generating capacity in professional football.

These descriptive correlations provide an initial indication of the relationship between sporting performance and accounting outcomes, as well as of the interconnections among key financial variables. However, their interpretation should be treated with caution, as they do not control unobserved club-specific heterogeneity or common time effects. These issues are explicitly addressed in the subsequent multivariate analysis through panel data models with fixed effects

5.3. Main Results

Table 3 reports the results of the baseline empirical models, in which return on assets (ROA) is explained as a function of the continuous sporting success index. Column 1 presents the contemporaneous specification, where sporting success is measured in the same season as profitability, while column 2 reports an alternative specification in which sporting success enters the model with a one-season lag. All estimations include club and season fixed effects, and standard errors are clustered at the club level.

Table 3. Estimation results for Models [*1*] and [*2*].

Variable	Estimation [*1*]	Estimation [*2*]
Success	0.00133**	
	(-0.00054)	
Success (t−1)		0.00073*
		(-0.00039)
FE club	Yes	Yes
FE year	Yes	Yes
Observations	209	195
Adj. R^2	0.329	0.328
Within R^2	0.069	0.023

Note: The table reports panel OLS estimates. The dependent variable is return on assets (ROA). In column 1, sporting success is measured contemporaneously, while column 2 uses the sporting success index lagged by one season (t−1). All specifications include club and season fixed effects. Standard errors (in parentheses) are clustered at the club level. * p < 0.10; ** p < 0.05; *** p < 0.01.

In column 1, the coefficient on sporting success is positive and statistically significant at the 5% level, indicating that better sporting performance in each season is positively associated with higher accounting profitability in the same season. These results suggest that clubs achieving stronger sporting performance also tend to report higher accounting profitability within the same accounting period, even after controlling for unobserved club-specific heterogeneity and common time effects.

From an economic perspective, the magnitude of the coefficient suggests that meaningful increases in sporting success translate into quantitatively modest but economically meaningful improvements in ROA. For example, an increase of 50 points in the sporting success index—roughly equivalent to the difference between qualifying for European competitions and winning the domestic league—is associated with an increase in ROA of approximately 6.7 percentage points. This magnitude indicates that sporting performance is not only statistically associated with profitability but also economically relevant.

Column 2 of Table 3 presents an alternative specification in which sporting success enters the model with a one-season lag, allowing us to examine whether the observed association persists over time. In this case, the coefficient remains positive, but both its magnitude and statistical significance are reduced, being significant only at the conventional 10%

level. This pattern suggests that the impact of sporting success on profitability is only weakly persistent over time.

Overall, the results indicate that the economic effect of sporting success on the profitability of professional football clubs is largely concentrated in the short term. While sporting performance generates immediate accounting benefits, its ability to sustain improvements in profitability in subsequent seasons appears limited, which is consistent with a business model in which revenues derived from sporting success are rapidly absorbed by higher operating costs. These findings are consistent with recent studies arguing that although sporting success increases clubs' revenue-generating capacity, much of these additional resources are subsequently reinvested in player salaries, transfers and other operating expenditures, thereby limiting long-term improvements in accounting profitability (e.g., Alabi *et al.*, 2024; Dermit-Richard *et al.*, 2024).

5.4. Robustness Analysis

To further assess the robustness of the main findings, we perform additional estimations using alternative specifications of the dependent variable. Instead of focusing on the level of accounting profitability, we analyse whether sporting success is associated with changes in profitability over time, by employing the first difference of return on assets (ΔROA) as the dependent variable.

This alternative specification allows us to capture short-term dynamics in financial performance and to test whether improvements in sporting outcomes are associated with contemporaneous variations in profitability, rather than with its absolute level. This approach is especially relevant in the context of professional football, where high-cost rigidity may obscure the effect of sporting success when profitability is measured in levels.

The empirical specification is as follows:

$$\Delta ROA_{i,t} = \beta * Success_{i,t} + \mu_i + \lambda_t + \varepsilon_{i,t} \qquad [3]$$

where $\Delta ROA_{i,t}$ denotes the change in return on assets for club i between seasons $t-1$ and t, $Success_{i,t}$ is the contemporaneous sporting success index, μ_i captures club fixed effects, and λ_t represents season fixed effects. An additional specification replaces $Success_{i,t}$ with its lagged value to assess persistence effects.

Table 4. Robustness analysis: Changes in profitability (ΔROA).

Variable	(1) ΔROA	(2) ΔROA
Success	0.00034* (0.00019)	
Success (t−1)		-0.00004 (0.00018)
FE club	Yes	Yes
FE year	Yes	Yes
Observations	177	175
Adj. R^2	0.087	0.023
Within R^2	0.023	0.000

Note: The table reports panel OLS estimates using the change in return on assets (ΔROA) as the dependent variable. In column 1, sporting success is measured contemporaneously, while column 2 uses the sporting success index lagged by one season (t−1). All specifications include club and season fixed effects. Standard errors (in parentheses) are clustered at the club level. * p < 0.10; ** p < 0.05; *** p < 0.01.

The results show that sporting success has a positive and statistically significant effect on changes in ROA, with significance at the 10% level. This finding suggests that better sporting performance is associated with short-term improvements in profitability dynamics, even if its impact on the level of profitability is more limited.

However, when introducing lagged sporting success into the model, the coefficient becomes statistically insignificant. This indicates that the positive effect of sporting success on profitability does not persist over time, reinforcing the interpretation that its economic impact is largely transitory.

Overall, these additional estimations provide further support for the main conclusion of the study. Although the robustness analysis relies on an alternative dependent variable, the estimated association remains positive and consistent with the baseline results. This reinforces the conclusion that sporting success is primarily associated with short-term improvements in clubs' accounting performance, whereas its longer-term association with profitability appears substantially weaker, likely because additional revenues are rapidly absorbed by increased operating costs.

6. Discussion

The results of this study provide empirical evidence on the relationship between sporting success and accounting profitability in professional football clubs, within an institutional context characterised by a strong orientation towards sporting performance and a high degree of cost rigidity. In particular, the findings show that sporting success has a positive and statistically significant association with effect on profitability when measured contemporaneously, while this effect weakens substantially when a temporal lag is introduced.

This pattern is consistent with the literature describing European football clubs as organisations oriented towards the maximisation of sporting outcomes rather than

economic profit (Sloane, 1971; Késenne, 2007). Within this framework, sporting success generates immediate additional revenues—derived from prize money, broadcasting rights, and increased commercial visibility—but these resources tend to be rapidly absorbed by higher operating costs, especially player wages and amortisation of player registrations. As a result, the positive impact on profitability is concentrated in the short term and does not necessarily translate into sustained improvements in economic performance.

Our results align with previous studies documenting a positive relationship between sporting performance and revenues, but a much weaker link with profitability measures (García-del-Barrio & Szymanski, 2009; Dimitropoulos & Limperopoulos, 2014). More recent evidence reaches similar conclusions, showing that although successful clubs generate substantially higher revenues, these gains are frequently offset by increases in wages, transfer expenditure and other operating costs, thereby limiting improvements in accounting profitability (Alabi *et al.*, 2024; Dermit-Richard *et al.*, 2024). In particular, the evidence that the effect of sporting success on ROA is only weakly persistent is consistent with research emphasising the rigidity of the cost structure in professional football and clubs' tendency to systematically reinvest additional revenues in sporting talent (Franck, 2010; Storm & Nielsen, 2012).

Moreover, the fact that the contemporaneous effect remains statistically significant even after controlling for club and season fixed effects suggests that sporting success operates as a short-term economic shock capable of temporarily improving accounting profitability. However, the loss of statistical significance in the lagged specification indicates that this shock does not consolidate over time, reinforcing the view that the business model of professional football constrains the accumulation of structural profitability. Importantly, these findings should be interpreted as evidence of association rather than causality, given the observational nature of the data and the potential for reverse relationships between financial capacity and sporting performance.

From an institutional perspective, these findings are also relevant to the debate on the financial sustainability of European football and the effectiveness of regulatory frameworks introduced over the past decade, such as Financial Fair Play. While sporting success may temporarily ease financial constraints, the evidence presented here suggests that, in the absence of effective cost discipline, such success does not guarantee lasting improvements in profitability. This result is consistent with studies questioning the ability of Financial Fair Play to fundamentally alter the economic incentives of dominant clubs (Peeters & Szymanski, 2014; Serrano *et al.*, 2023).

The results also have practical implications for club managers. While achieving sporting success remains essential from both a competitive and commercial perspective, the evidence suggests that sustainable financial performance depends on clubs' ability to convert additional revenues into long-term economic value rather than immediately increasing operating expenditure. Consequently, effective financial planning and cost control appear to be critical complements to sporting success.

Beyond their financial implications, these results also have broader socioeconomic relevance. The short-term nature of the economic benefits derived from sporting success may contribute to increased financial risk-taking behavior by clubs, with potential consequences for competitive balance, long-term sustainability, and stakeholder welfare, including fans and local communities.

Overall, the empirical evidence reinforces the view of European professional football as a sector in which sporting success and economic performance are closely linked, but not in an automatic or permanent manner. Success on the pitch generates immediate economic benefits, yet its translation into sustainable profitability critically depends on clubs' ability to contain costs and adopt prudent financial management.

7. Conclusion

This study examines the relationship between sporting success and accounting profitability in professional football clubs, using a panel dataset covering the main entities in Spanish football over an extended time horizon. Unlike previous approaches based on discrete measures of sporting performance, the paper proposes a continuous index of sporting success that systematically integrates performance in the domestic league, national cup competitions, and European tournaments, allowing for a more precise capture of intertemporal variation in competitive outcomes.

The empirical results show that sporting success has a positive and statistically significant effect on return on assets when measured contemporaneously. This finding indicates that improved sporting performance translates into immediate enhancements in accounting performance, even after controlling for unobserved club-specific heterogeneity and common time effects. However, when sporting success is introduced with a temporal lag, the effect decreases markedly in both magnitude and statistical significance, suggesting that the economic impact of sporting success is only weakly persistent.

Taken together, these results provide evidence consistent with the view that the business model of European professional football facilitates the realisation of short-term economic benefits from sporting success, while hindering their consolidation into sustained profitability. High-cost rigidity—particularly with respect to player wages and amortisation—limits clubs' ability to transform the additional revenues associated with sporting success into durable improvements in financial performance.

From an academic perspective, this study contributes to the accounting and sports economics literature by providing an alternative, continuous measure of sporting success and by empirically documenting the temporal nature of the link between sporting performance and profitability. The findings complement prior evidence distinguishing between the strong effect of sporting success on revenues and its more limited impact on profitability, underscoring the importance of explicitly considering cost structures and institutional incentives in the financial analysis of football clubs.

From a practical and regulatory standpoint, the results suggest that sporting success, while capable of temporarily alleviating financial constraints, does not guarantee economic sustainability. For managers, this highlights the importance of accompanying sporting performance with effective cost control and medium-term financial planning. For regulators, the findings indicate that initiatives aimed at promoting financial stability in professional football should pay close attention to the incentives clubs face following episodes of sporting success.

This study is not without limitations. First, the analysis focuses on a single national league, which may limit the generalisability of the results to other institutional settings. Second, although the sporting success index captures multiple dimensions of competitive performance, future research could explore alternative measures or further disaggregate effects by competition type. Third, the empirical design is based on observational data, which limits the ability to draw causal inferences regarding the relationship between sporting success and profitability.

Future research could build on this study by incorporating additional club-level variables—such as fan base dynamics, wage structures, or transfer expenditures—and by exploring more granular specifications that disentangle the individual effects of different components of sporting success. Future work could also explicitly analyse the transmission mechanisms linking sporting success, revenues, costs, and profitability, as well as extend the analysis to a cross-country comparative framework.

Overall, the results highlight that sporting success and accounting profitability are related, but not in an automatic or permanent manner, confirming the structural tension between sporting and financial objectives that characterises European professional football.

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APPENDIX

Table A1. Clubs included in the sample and average economic profile.

Club	Season in 1st Division (2009–2010 to 2023–2024)	Average revenues (€ million)	Average total assets (€ million
Athletic Club	15	98.6	197.5
Atlético de Madrid	15	258.1	749.7
Barcelona	15	622.1	1084.7
Betis	11	75.9	152.0
Celta	12	52.1	96.5
Espanyol	13	59.1	214.7
Getafe	14	46.8	68.7
Mallorca	9	30.5	59.3
Osasuna	12	42.6	85.5
Real Madrid	15	644.2	1208.5
Real Sociedad	14	76.7	154.5
Sevilla	15	136.1	318.1
Valencia	15	119.3	581.3
Villarreal	14	104.7	215.8

Note: This table reports the clubs included in the final sample, the number of seasons in which they competed in the Spanish First Division during the 2009–2010 to 2023–2024 period, and their average economic profile, measured by revenues and total assets. The information is provided for descriptive purposes and sample transparency only and does not determine the sample selection criteria nor enter the main empirical models as explanatory variables.

Table A2. Annual sporting success scores by club (2009–2010 to 2023–2024).

Club/Season	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
Athletic Club	35.9	41.1	46.9	23.9	47.8	42.8	51.2	39.9	17.8	35.9	30.8	34.9	38.7	38.7	49.5
Atlético de Madrid	57.5	39.9	57.3	54.7	77.1	60.5	60.5	66.9	68.1	56.7	59.0	62.9	59.0	55.5	59.2
Barcelona	69.3	83.6	72.4	72.1	65.9	85.0	70.0	67.4	70.0	73.6	63.1	59.7	57.7	57.1	63.1
Real Betis	1.4	5.7	21.3	39.9	7.3	4.3	30.6	16.0	39.7	33.5	16.0	42.6	52.5	44.1	38.5
Celta de Vigo	5.7	1.4	4.3	12.2	31.8	35.9	44.0	34.6	22.7	10.8	10.8	33.0	26.5	22.7	24.1
Espanyol	26.5	37.3	21.5	21.3	21.5	33.5	22.7	34.4	29.4	39.9	2.9	2.9	20.1	6.9	4.3
Getafe	44.0	14.8	26.5	32.0	22.7	18.9	5.5	2.9	34.4	45.2	37.4	14.6	14.6	14.6	25.3
Mallorca	45.2	12.2	37.3	9.5	1.4	1.4	1.4	1.4	—	2.9	5.5	1.4	16.2	33.2	21.7
Osasuna	26.8	31.8	38.5	14.8	9.5	1.4	1.4	6.9	1.4	1.4	30.6	28.0	29.2	42.8	28.0
Real Sociedad	1.4	16.0	25.3	46.4	41.4	26.8	33.2	42.6	23.9	33.2	46.8	43.8	42.6	50.8	49.0
Real Madrid	55.2	72.4	70.7	70.9	79.7	66.7	75.2	80.7	75.5	56.9	60.7	65.2	80.7	72.4	79.3
Sevilla	57.1	46.6	33.2	36.1	58.8	60.2	57.8	51.4	52.8	45.6	61.4	54.2	49.4	41.8	21.5
Valencia	55.0	54.0	60.9	50.2	44.9	47.8	31.2	25.3	49.2	61.1	39.7	22.7	37.5	21.5	33.2
Villarreal	41.5	56.8	9.5	1.4	41.1	47.0	55.4	43.8	43.8	26.1	45.2	54.9	53.5	43.8	38.9

Note: This table reports the annual values of the continuous sporting success index for each club and season included in the sample. The index is constructed from performance in the domestic league, national cup, and European competitions, as described in Section 4.2.1. Higher values indicate greater relative sporting success in the corresponding season. The symbol "—" denotes the absence of an available observation for that season.

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Effects of Work–Family Conflict and Work Anxiety on Self-Efficacy and Task Performance: The Role of Emotional Intelligence in Remote e-Working

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ABSTRACT

This study analyzes how work-family conflict (WFC) and work-related anxiety shape self-efficacy and task performance in remote e-working, and it examines emotional intelligence (EI) as a personal emotional resource. Drawing on social cognitive theory and appraisal theory, we distinguish WFC as a situational stressor, self-efficacy as a cognitive appraisal of capability, and anxiety as a proximal affective response. Data were collected from 281 public servants in administrative sectors of Brazilian state and federal public organizations and analyzed using PLS-SEM. The findings show that WFC undermines task performance indirectly by reducing self-efficacy. Work-related anxiety, by contrast, is more directly related to lower task performance and is not transmitted through self-efficacy. EI is positively associated with self-efficacy, but it does not significantly buffer the negative effects of WFC or anxiety. The study contributes to accounting and public-sector management research by clarifying the psychological sequence through which remote e-working conditions influence performance and by showing the boundary conditions of individual emotional resources in domestic work environments.

KEYWORDS

Self-efficacy; Work-Family Conflict; Work-Related Anxiety; Task Performance; Emotional Intelligence; Remote E-Working

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1 Introduction

Technological advancement has transformed how people live and work (Messenger & Gschwind, 2016), affecting organizational processes and task execution (Vazquez et al., 2019). The expansion of digital technologies has made it possible for employees to access information, communicate with managers and colleagues, and perform tasks from locations outside the traditional office. These developments gave rise to remote e-working practices (Messenger & Gschwind, 2016; Silva & Rosa, 2023), which were accelerated by the COVID-19 pandemic in both public and private organizations (Lengen et al., 2021; Silva & Rosa, 2023).

Remote e-working is especially consequential in public organizations because public servants must often maintain service quality, accountability, and coordination while working at a distance from colleagues, managers, and citizens (Van Rinsum & Verbeeten, 2012; Silva & Rosa, 2023). Remote work offers benefits such as reduced commuting time and greater temporal flexibility (Lister & Harnish, 2011; Sardeshmukh et al., 2012), but it also creates distinctive demands, including social isolation, blurred work–family boundaries, intensive video meetings, family interruptions, inadequate equipment, and limited informal feedback from supervisors and coworkers

(Charalampous et al., 2019; Lengen et al., 2021). These conditions make remote e-working a relevant setting for examining how psychosocial factors influence task performance.

Management literature explains this issue through appraisal and social cognitive theories. Appraisal theory differentiates stressors, cognitive appraisals, emotional responses, and behavioral outcomes (Lazarus, 1991; Lazarus & Folkman, 1984), while social cognitive theory views self-efficacy as perceived capability shaped by experience, task demands, resources, and constraints (Bandura, 1997; Gist & Mitchell, 1992). Together, they suggest that, in remote e-working, work–family conflict acts as a stressor, self-efficacy as the coping appraisal, anxiety as the emotional response, and task performance as the outcome. Importantly, work–family conflict differs from anxiety: it reflects interference between work and family roles, which can undermine employees' perceived ability to work effectively at home (Gutek et al., 1991; Lupu et al., 2018).

Despite growing research on remote work, important gaps remain. First, prior studies often examine remote work outcomes without clearly differentiating stressors, cognitive appraisals, emotional responses, and behavioral performance. Second, although self-efficacy has been linked to performance, less is known about whether it operates similarly when employees work from home and face overlapping work and family roles. Third, research on EI has often emphasized its direct benefits, whereas its limits in remote e-working remain less understood. These gaps are particularly relevant in public organizations, where task performance is linked to continuity, accountability, and quality of public services.

To address these gaps, this study analyzes the relationships among work-family conflict, work-related anxiety, self-efficacy, emotional intelligence, and task performance in the context of remote e-working. Using survey data from 281 Brazilian public servants

and PLS-SEM, we examine whether work-family conflict reduces performance through self-efficacy, whether work-related anxiety has a more direct effect on performance, and whether EI is associated with self-efficacy and/or attenuates negative psychological effects.

This research contributes to the literature by demonstrating that self-efficacy can reduce the effects of anxiety and family–work conflict on task execution. This research expands the models that integrate the relationships between family and work (Lupu et al., 2018) and increases the understanding of the asymmetric effects of family–work conflict and its impact on work activities (Zheng et al., 2021). In practice, this contribution highlights the need for managers and policymakers to implement strategies (e.g., training, support, and appropriate working conditions) to mitigate the negative effects of anxiety and family–work conflicts in remote work.

2 Theoretical Basis and Development of Hypotheses

2.1 Work-family conflict, self-efficacy, work-related anxiety and task performance

Remote e-working can reduce commuting time and operating expenses (Nakrošienė et al., 2019), but it can also expose employees to stressors that are less visible in traditional workplaces (Song & Gao, 2020). In appraisal theory, stressors are environmental or role-related demands that may exceed an individual's available resources (Lazarus & Folkman, 1984; Hobfoll, 1989). Work-family conflict is one such stressor. It occurs when the demands of work and family roles are mutually incompatible, so that participation in one role makes participation in the other more difficult (Gutek et al., 1991; Eby et al., 2005). In remote e-working, this conflict can be intensified because the home becomes both the work site and the family site, increasing the likelihood of interruptions, role overlap, and competing expectations.

Social cognitive theory suggests that employees respond to such demands partly through self-efficacy judgments. Self-efficacy refers to individuals' beliefs about their ability to organize and execute courses of action required to attain desired performance (Bandura, 1997). These beliefs are not merely dispositional; they are formed through task analysis, prior mastery experiences, social persuasion, and the interpretation of situational constraints (Gist & Mitchell, 1992; Wood & Bandura, 1989). In remote e-working, work-family conflict may lower self-efficacy because employees perceive fewer resources, less control, and more competition for time and attention. Reduced self-efficacy should, in turn, impair task performance because employees feel less capable of planning, prioritizing, persisting, and completing work accurately. The impact of remote e-working post-pandemic (COVID-19) is particularly relevant, as the substantial increase in this situation can substantially alter the complexity of the environment and tasks, thus providing room for empirical investigation. Therefore, we hypothesize the following:

H1a: Work-family conflict is negatively associated with self-efficacy in remote e-working.

H1b: Self-efficacy is positively associated with task performance in remote e-working.

H1c: Self-efficacy mediates the relationship between work-family conflict and task performance, such that work-family conflict reduces self-efficacy, which in turn reduces task performance.

Work-related anxiety should be distinguished from both work-family conflict and stress. Stress refers to a perceived imbalance between demands and resources, whereas anxiety is an affective state characterized by apprehension, tension, worry, and physiological or cognitive unease (Lazarus & Folkman, 1984; Cheng & McCarthy, 2018).

In remote e-working, anxiety may arise from uncertain expectations, reduced feedback, social isolation, information scarcity, interruptions, and the need to manage complex administrative tasks without immediate support. These factors can make employees feel unable to cope with current or anticipated demands.

Because anxiety is a proximal emotional response, its impact on task performance may be more direct than indirect. Anxiety can consume attentional resources, narrow information processing, increase rumination, and reduce concentration, all of which can affect accuracy, timeliness, and decision quality (Cheng & McCarthy, 2018; Samma et al., 2020). Although anxiety may inform self-efficacy judgments under some conditions, appraisal theory suggests that emotional responses often follow cognitive evaluations and then influence behavior. Therefore, rather than assuming that anxiety necessarily reduces task performance through self-efficacy, we expect anxiety to be directly associated with lower task performance in remote e-working. Therefore we formulate the following hypothesis:

H1d: Work-related anxiety is negatively associated with task performance in remote e-working.

At the same time, the relationship between self-efficacy, anxiety, and performance may be dynamic. A large body of research shows that self-efficacy enhances motivation, persistence, and performance (Bandura, 1997; Chen et al., 2001). However, more recent work suggests that high self-efficacy can also produce complex self-regulatory effects when individuals set very challenging goals or maintain effort in demanding environments (Vancouver et al., 2002; Vancouver & Purl, 2017). In remote e-working, where boundaries between work and family are blurred, highly self-efficacious

employees may sustain effort despite pressure, which can preserve performance but also increase exposure to strain. For this reason, we interpret the empirical relationships among self-efficacy, anxiety, and performance as theoretically important but not necessarily unidirectional over time.

Taken together, these arguments lead us to model work-family conflict as a stressor that shapes self-efficacy, self-efficacy as a cognitive resource for task performance, and work-related anxiety as an emotional state with a more immediate relationship to performance. This revised logic aligns the empirical model with the sequence stressor -> cognitive appraisal -> emotional response and/or behavior.

2.2 Emotional intelligence as an emotional resource in remote e-working

Emotional intelligence refers to the ability to perceive, understand, use, and regulate emotions in oneself and others (Goleman, 1995; Law et al., 2004). In organizational contexts, EI is commonly viewed as a personal resource that supports adaptive functioning, interpersonal effectiveness, and coping with emotionally demanding situations (Boyatzis, 2009; Pirsoul et al., 2023). In remote e-working, EI may be particularly relevant because employees have fewer informal cues and less immediate support from managers and colleagues, while also facing the emotional demands created by blurred work-family boundaries.

From an appraisal perspective, EI should operate primarily at the level of emotional processing and coping. Employees with higher EI may be better able to recognize their emotions, regulate frustration or worry, and maintain constructive interactions with colleagues and family members. These abilities can support a stronger sense of personal capability and control. Therefore, in addition to examining whether EI

buffers the effects of specific stressors, we theorize that EI has a direct positive relationship with self-efficacy in remote e-working.

H2: Emotional intelligence is positively associated with self-efficacy in remote e-working.

We nevertheless also examine whether EI attenuates the negative effects of work-family conflict and work-related anxiety on self-efficacy as supplementary moderation tests. This additional test is relevant because prior research has linked EI to coping with work-family conflict and emotionally demanding work situations (Ganesh & Ganesh, 2022; Garavan et al., 2022; Robinson et al., 2025). However, the buffering role of EI may be limited when the demands are structural rather than primarily emotional. For example, EI may help employees regulate emotions, but it cannot by itself remove interruptions, workload pressure, inadequate equipment, or the absence of managerial support. Thus, EI is an emotional resource that may strengthen self-efficacy directly while also allowing for the possibility that its buffering role is weaker in fully remote domestic work contexts.

Figure 1 summarizes the theoretical model. Work-family conflict is modeled as a situational stressor that can undermine self-efficacy and, through self-efficacy, task performance. Work-related anxiety is modeled as a proximal emotional state expected to relate directly to task performance. Emotional intelligence is modeled as a personal emotional resource associated with self-efficacy, with supplementary tests of whether it attenuates the negative effects of work-family conflict and anxiety on self-efficacy.

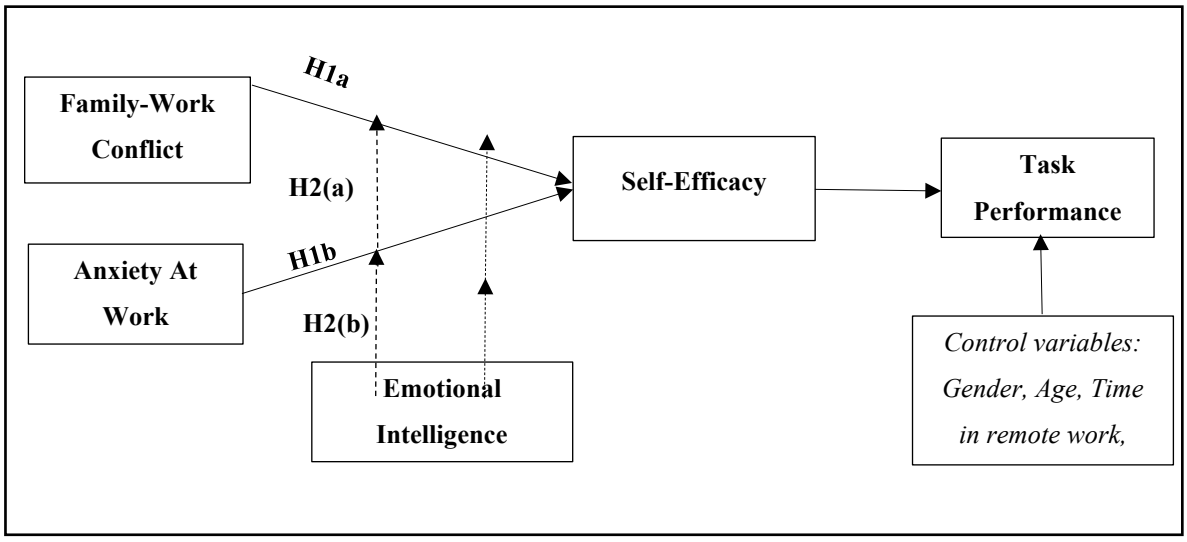

Figure 1. Theoretical Model

Source(s): Developed by the authors

3 Research methodology

3.1 Research context and sample

With the COVID-19 pandemic in 2020, approximately 3 million people employed in the Brazilian public sector (federal, state, and municipal spheres) began working remotely (IPEA, 2021). Given the complexity of this modality, Brazil enacted Law No. 14,442 in 2022, which regulates remote work and defines the rights and duties of public workers and servants (Brasil, 2022). In the following years, remote work remained a consolidated practice in the public sector, representing, for example, 16% of the federal workforce (Lima, 2024). In this context, our research was carried out with 4,000 public servants from the administrative sectors (accounting and management), who perform tasks in remote *e-working* for federal and state public organizations in Brazil. This target population was obtained from the official websites of public organizations, which support remote work, as well as requested via the Access to Information Law. These lists were used due to the obligation of Brazilian public organizations to publish information

monthly on their official websites, including the name, position and place of assignment of all servers engaged in remote work.

To collect the data, a questionnaire was developed from the literature, and the questions were translated from English to Portuguese with the support of bilingual specialists to ensure linguistic accuracy and conceptual equivalence. A pretest was subsequently carried out with 5 researchers in the field and 5 professionals to verify the inconsistencies and interpretation of each of the questions.

The results led to small changes in the wording of some questions. Finally, we emailed a cover letter to 4,000 state and federal employees in which we explained the purpose of the survey, ensured anonymity and data protection (Brazilian Data Protection Law), and provided a *link* to the questionnaire (Appendix A).

To increase the number of responses, we also sent requests via *LinkedIn*. At the end of this process, a total of 334 completed questionnaires were obtained (approximately 8% of the target population). However, 23 were excluded because they were public servants who performed activities in nonadministrative areas (accounting), and 20 were excluded because they were no longer engaged in remote *e-working* activities, resulting in a total of 281 valid questionnaires. The questionnaire was sent from December 2023 to March 2024. Table 1 presents the characteristics of the public servants who responded.

Table 1. Profile of the public servant respondents

Gender	**Count**	**%**	**Age**	**Count**	**%**
Female	176	62.63	From 21–30 years	7	2.49
Male	105	37.30	From 31–40 years	82	29.18
			From 41–50 years	111	39.50
			From 51–60 years	64	22.78
			Over 60 years	17	6.05
Time performed tasks – remote			**Time performed tasks - serv. Public**	**Count**	**%**
From 1 month–5 years	275	97.86	From 1 month–5 years	19	6.76
From 6–10 years	6	2.14	From 6–10 years	58	20.64
			From 11–15 years	80	28.47
Marital status			From 16–20 years	56	19.93
Married	168	59.79	From 21–25 years	17	6.05
Single	53	18.86	From 26–30 years	21	7.47
Stable union	44	15.66	From 31–35 years	13	4.63
Divorced	14	4.98	Over 36 years	17	6.05
Widow	2	0.71			

Source(s): Developed by the authors

3.2 Measures

We developed our measurement instrument using established scales from the relevant literature with minor adaptations for remote e-working in the public sector, as shown in the Appendix. All constructs used seven-point Likert scales ranging from 1 (completely disagree) to 7 (completely agree). The questionnaire was translated from English to Portuguese and reviewed by bilingual specialists to ensure linguistic accuracy and conceptual equivalence. A pretest with researchers and professionals was used to assess item clarity and contextual fit.

Work-family conflict (8 items): We measured work-family conflict based on Gutek et al. (1991). Because the scale captures both family interference with work and work interference with family, we treat the construct as bidirectional role conflict rather than as a purely family-to-work variable. This clarification is important in remote e-working, where domestic and professional role boundaries are intertwined. Examples of items include: "I am worried about my work during my free time", and "My personal obligations are so numerous that they keep me away from my work."

Work-related anxiety symptoms (6 items): We measured work-related anxiety symptoms following Samma et al. (2020). We interpret this scale as capturing negative affective symptoms associated with anxiety in remote e-working, including worry, low mood, hopelessness, and depletion. Some items are direct indicators of anxiety, whereas others capture affective-somatic manifestations that often accompany anxiety at work. To avoid overclaiming, we clarify that the measure is not intended to reproduce the full Parker and DeCotiis (1983) job-stress scale; rather, it is an adapted symptom-based work-related anxiety measure used in prior organizational research. Examples of items include: "In remote e-working, my feelings are low, characterized by anxiety and hopelessness", and "I feel tired or low on energy."

Self-efficacy (8 items): We measured self-efficacy based on Chen et al. (2001). Consistent with social cognitive theory, the construct captures the public servant's belief in his or her capability to organize and execute remote-work tasks. Examples include: "When facing difficult tasks in remote e-working, I am sure that I will perform them", and "I am confident that I can effectively perform the different tasks in remote e-working."

Task performance (6 items): We measured task performance based on Van Scotter & Motowidlo (1996); Befort & Hattrup (2003); Kappagoda et al. (2014), which included work accuracy regarding the accounting tasks performed, quantity of work performed, quality of work, operational efficiency and punctuality in meeting delivery deadlines.

Emotional intelligence (16 items): We measured emotional intelligence based on Law et al. (2004). EI is defined as the ability to perceive, understand, and regulate one's own emotions and those of others in social and work environments. In the revised model,

EI is treated primarily as an emotional resource that can support self-efficacy and coping, rather than as a universal buffer against all contextual stressors.

Control variables: We chose control variables that may provide an alternative explanation for task performance, including gender, age, experience (length of work in the public sector and length of time working remotely) and marital status. With respect to gender, for example, women report greater psychological distress (Matud, 2004) and higher psychosomatic complaints than men do (Nimnuan et al., 2001); compared with men, women experience more family–work conflicts (Eby et al., 2005) and may experience higher levels of work-related anxiety (Xie & Johns, 1995). Like gender, age can affect perceptions of self-efficacy, as younger people tend to report more psychosomatic symptoms (Nimnuan et al., 2001). On the other hand, experience is also a factor because, depending on the Task Performance (TC,) more experienced public servants and/or those with more experience in *remote e-working* may perform better than less experienced workers (Chung and Monroe, 2000). However, experience may also increase anxiety because of obligations to develop improved tasks (Chen et al., 2016). The presence or absence of children and marital status can also affect family–work conflict (Adkins & Premeaux, 2012). The respondents were asked to indicate their marital status: single, married, or common-law marriage. Age and experience (time in public service and in remote work) are captured through responses to an open question. The gender item offers 4 choices: female, male, nonbinary, and I prefer not to answer.

3.3 Data Analysis

Descriptive statistics and structural equation modeling were used for analysis. Structural equation modeling aims to examine the structure of the interrelationships between the constructs of the analysis. It combines the use of multivariate methods of

factor analysis and multiple regression analysis. Statistical analysis is performed with the help of SmartPLS software.

The analysis was carried out in three stages: first, the exploratory and confirmatory factor analysis; second, the measurement model; and, later, the structural model. In the measurement model, in accordance with Hair Jr. et al. (2022), four main components are evaluated: reliability: (i) internal and (ii) compound; validities: (iii) convergent and (iv) discriminant.

In the analysis of the structural model, we sought to verify whether there were relationships between the constructs and the connections. This process, according to Hair Jr. et al. (2022), confirms the adequacy of the measurement model and attests to the significance of the relationships between the study constructs.

4 Results

4.1 Measurement model

To apply the PLS-SEM, tests were performed on the reflective measurement model to verify its adequacy. The results (see Table 2) were analyzed according to the criteria recommended by Hair Jr. et al. (2022). The factor loading values excluded from the model are presented in Appendix A. To ensure convergent validity, the average variance extracted (AVE) was analyzed, which presented values greater than 0.5. For internal consistency reliability, the composite reliability values were determined, which were greater than 0.7, and the Cronbach's alpha values were close to or greater than 0.6, as shown in Table 2.

Table 2. Results of the measurement model

Constructs	Factor loading		Reliability		Conv. validity
	Minor	Major	Cronbach's Alpha	Composite Reliability	AVE
Work–Family Conflict	0.642	0.815	0.862	0.887	0.529
Job Anxiety	0.706	0.852	0.883	0.911	0.633
Self-Efficacy	0.790	0.893	0.936	0.947	0.691
Emotional Intelligence	0.536	0.813	0.919	0.931	0.515
Task Performance	0.693	0.771	0.590	0.784	0.548

Source(s): Developed by the authors

To verify discriminant validity, which assesses whether latent variables are independent of each other (Hair Jr. et al., 2022), we used the Fornell–Larcker criterion, demonstrating the highest loadings in the corresponding variables (main diagonal).

Table 3. Discriminant validity - Fornell-Larcker

Constructs	1	2	3	4	5	6	7	8	9	10
1. Work–family conflict	**0.728**									
2. Work anxiety	0.631	**0.796**								
3. Self-efficacy	-0.447	-0.472	**0.831**							
4. Emotional intelligence	-0.366	-0.503	0.512	**0.718**						
5. Task performance	-0.205	-0.365	0.506	0.418	**0.740**					
6. Marital status	0.073	0.018	-0.059	-0.061	-0.008	-				
7. Gender	-0.049	-0.018	0.097	0.170	0.110	-0.030	-			
8. Age	0.049	-0.082	0.067	0.244	0.157	0.097	0.145	-		
9. Public service time	0.084	-0.051	0.066	0.238	0.180	0.097	0.081	0.729	-	
10. Remote work time	0.019	0.050	0.101	0.035	0.165	0.053	-0.030	0.025	0.142	-

Source(s): Developed by the authors

We also assessed discriminant validity (see Table 4) using the heterotrait–monotrait method (HTMT), which presented values lower than 0.8. Thus, discriminant validity is not a problem in our model.

Table 4. Quality criteria

Constructs	R2	R2 Adj	Q^2	Max. VIF
Self-efficacy	0.366	0.354	0.244	2.801
Task performance	0.324	0.304	0.152	2.226

Source(s): Developed by the authors

4.2 Structural model

The structural model tests the strength and direction of variables by examining collinearity (VIF), structural model relationships (hypothesis testing), the coefficient of determination (R^2), and predictive relevance (Q^2) (Hair Jr. et al., 2022). The results of the analyses of direct and mediation relationships are presented in Table 5.

Table 5. Path relationships

Panel A – Direct relationships				
Path	**β**	**T value**	**P values**	
Family–work conflict -> Self-efficacy	-0.208	3.454	0.001***	
Family–work conflict -> Task performance	0.132	1.588	0.112	
Anxiety at work -> Self-efficacy	-0.143	1.603	0.109	
Anxiety at work -> Task performance	-0.247	2.381	0.017**	
Self-efficacy -> Task performance	0.422	4.924	0.000***	
Emotional intelligence -> Self-efficacy	0.357	5.380	0.000***	
Marital status -> Task performance	-0.004	0.084	0.933	
Gender -> Task performance	0.064	1.278	0.201	
Age -> Task performance	0.027	0.350	0.726	
Public service time -> Task performance	0.087	1.281	0.200	
Remote work time -> Task performance	0.121	2.357	0.018**	
Panel B – Mediation Analysis				
Path	**B**	**T value**	**P values**	**Hypothesis**
Family–work conflict -> Self-efficacy -> Task performance	-0.088	2.694	0.007***	H1a
Anxiety at work -> Self-efficacy -> Task performance	-0.060	1.506	0.132	H1b
Panel C – Moderation Analysis				
Path	**B**	**T value**	**P values**	**Hypothesis**
Family–work conflict x Emotional intelligence -> Self-efficacy	0.134	1.503	0.133	H2a
Anxiety at work x Emotional intelligence -> Self-efficacy	-0.039	0.437	0.662	H2b

*Note: * p < 0.10; ** p < 0.05; *** p < 0.01.*

Source(s): Developed by the authors

Next, the structural model was evaluated to verify the relationships of the theoretical model in which the relationships between the variables and their predictive capabilities were observed. Hair Jr et al. (2022) recommend evaluating the structural coefficient (β), the t value (β/standard deviation) and the p value of each relationship, also, applying the bootstrap technique with a resampling of 5,000.

The results in Table 5 indicate that work-family conflict is negatively associated with self-efficacy ($\beta = -0.208$, $p < 0.01$), supporting H1a. Self-efficacy is positively associated with task performance ($\beta = 0.422$, $p < 0.01$), supporting H1b. The indirect effect of work-family conflict on task performance through self-efficacy is negative and significant ($\beta = -0.088$, $p < 0.01$), supporting H1c. These results suggest that work-family conflict undermines task performance primarily by reducing employees' perceived capability to deal with remote-work demands.

Work-related anxiety is negatively associated with task performance ($\beta = -0.247$, $p < 0.05$), supporting H1d. By contrast, the relationship between work-related anxiety and self-efficacy is not significant ($\beta = -0.143$, $p > 0.10$), and the indirect effect of work-related anxiety on task performance through self-efficacy is not supported ($\beta = -0.060$, $p > 0.10$). This pattern is consistent with the revised theoretical position that anxiety is a proximal emotional state that may impair attention, concentration, and task execution more directly than it reshapes self-efficacy beliefs.

Emotional intelligence is positively related to self-efficacy ($\beta = 0.357$, $p < 0.01$), supporting H2. However, the supplementary moderation tests are not significant. The interaction between emotional intelligence and work-family conflict in predicting self-efficacy is not confirmed ($\beta = 0.134$, $p > 0.10$), nor is the interaction between emotional intelligence and work-related anxiety in predicting self-efficacy ($\beta = -0.039$, $p > 0.10$). The control variables marital status, gender, age, and time in public service do not show

significant relationships with task performance, whereas time spent working remotely is positively related to task performance.

4.3 Discussion

The findings support the argument that work-family conflict functions as a remote-work stressor that undermines task performance indirectly through self-efficacy. When public servants experience competing family and work demands in the same physical space, they may perceive less control over time, attention, and task completion. This reduced appraisal of capability lowers task performance. The result is consistent with social cognitive theory, because efficacy beliefs shape how employees mobilize effort and persist when they face demanding tasks (Bandura, 1997; Gist & Mitchell, 1992). It also extends research on remote e-working by showing that the performance consequences of role conflict depend on cognitive appraisals of capability, not only on the presence of conflict itself.

The results also clarify the role of work-related anxiety. The nonsignificant anxiety -> self-efficacy path and the significant anxiety -> task performance path indicate that anxiety is not best understood here as a stressor that necessarily operates through self-efficacy. Rather, consistent with appraisal-based reasoning, anxiety appears to be a proximal affective response that can impair task execution directly. In remote e-working, anxious employees may struggle with concentration, decision quality, and punctuality even when their general beliefs about capability remain relatively stable. This interpretation helps explain why the originally expected anxiety-mediated pathway was not supported and why the direct effect of anxiety on performance is more robust.

The findings regarding emotional intelligence are also theoretically informative. EI is positively associated with self-efficacy, suggesting that employees who are better

able to perceive and regulate emotions tend to report stronger capability beliefs in remote e-working. However, EI does not significantly moderate the negative effects of work-family conflict or anxiety on self-efficacy. This pattern indicates that EI should not be treated as a universal buffer. In domestic remote-work environments, structural and contextual conditions - such as workload, interruptions, technology, workspace quality, and managerial support - may exceed what individual emotional regulation can offset.

Finally, the results invite a more nuanced interpretation of self-efficacy. Although self-efficacy is positively related to task performance in this study, remote e-working may generate dynamic and potentially bidirectional relationships among efficacy beliefs, stress, anxiety, and performance. Highly self-efficacious employees may persist and perform well under pressure, but such persistence may also expose them to sustained demands over time (Vancouver et al., 2002; Vancouver & Purl, 2017). Longitudinal research is therefore needed to examine whether self-efficacy remains uniformly beneficial or whether its effects depend on workload, recovery opportunities, and organizational support.

5 Conclusion and Contributions

5.1 Conclusion

This paper analyzed how work-family conflict, work-related anxiety, self-efficacy, and emotional intelligence are associated with task performance in remote e-working. Drawing on appraisal theory and social cognitive theory, the revised manuscript distinguishes among situational stressors, cognitive capability appraisals, emotional responses, and behavioral outcomes. Data from 281 Brazilian public servants were analyzed using PLS-SEM. The findings indicate that work-family conflict reduces self-efficacy and, through this mechanism, undermines task performance. Work-related

anxiety, by contrast, is more directly associated with lower task performance and is not transmitted through self-efficacy.

These findings show that the psychological mechanisms affecting performance in remote e-working differ across constructs. Work-family conflict appears to threaten employees' sense of capability because it creates competing demands and weakens perceived control over work. Anxiety appears to affect task performance more immediately by disrupting attention, concentration, and execution. For managers and policymakers, this distinction matters: interventions designed to reduce role conflict and strengthen self-efficacy may not be sufficient to address anxiety-related performance losses, which may require more direct psychological and organizational support.

Emotional intelligence was positively associated with self-efficacy but did not significantly moderate the relationships between work-family conflict and self-efficacy or between work-related anxiety and self-efficacy. This result suggests that EI is useful as a personal emotional resource, but its capacity to compensate for structural remote-work demands is limited. In fully remote domestic environments, organizational practices - such as workload management, clear performance expectations, flexible scheduling, manager support, and adequate technology - may be necessary to complement individual emotional competencies.

5.2 Theoretical contributions

This study contributes to the literature in three ways. First, it advances research on remote e-working by integrating appraisal theory and social cognitive theory to clarify the sequence linking remote-work stressors, cognitive appraisals, emotional responses, and performance. Second, it shows that self-efficacy is a key mechanism through which work-family conflict affects task performance among public servants working remotely.

Third, it refines the role of emotional intelligence by showing that EI is positively associated with self-efficacy but does not necessarily buffer the effects of work-family conflict or anxiety. This distinction is important because it identifies the boundary conditions of individual emotional resources in domestic remote-work contexts.

5.3 Practical implications

The findings offer practical implications for public-sector managers. Because work-family conflict reduces performance through self-efficacy, managers should create conditions that strengthen employees' perceived control over remote-work tasks. Examples include clearer task priorities, predictable communication routines, realistic deadlines, training for remote task management, and flexibility that helps employees manage role boundaries. Because anxiety is directly associated with lower performance, organizations should also provide resources aimed at reducing anxiety itself, such as psychological support, workload monitoring, frequent feedback, and manager availability. Finally, EI-related training may be valuable, but it should complement rather than replace structural support for remote work.

5.4 Limitations and future research

This study has limitations that create opportunities for future research. First, the sample consists of Brazilian public servants working remotely, so the findings may not generalize to private-sector, hybrid, or face-to-face contexts. Second, the cross-sectional design limits causal inference and cannot fully capture the dynamic or bidirectional relationships among self-efficacy, stress, anxiety, and performance. Third, the anxiety measure captures work-related anxiety symptoms rather than the full Parker and DeCotiis (1983) job-stress construct; future studies should compare alternative anxiety and stress instruments and

test whether direct and indirect effects depend on measurement choices. Fourth, self-reported data may differ from supervisor, coworker, or family-member assessments. Future research should use longitudinal designs, multi-source performance measures, and additional contextual variables such as organizational support, workload, workspace quality, and recovery opportunities.

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Author Contributions

Conceptualization: CAS; FSR and DNG; methodology: CAS and FSR; formal analysis: CAS; FSR and DNG; data curation: CAS; writing - original draft: CAS; writing - review & editing: FSR and DNG; Supervision: CAS; funding acquisition: FSR.

Conflicts of Interest

The authors declare no conflict of interest.

Use of Artificial Intelligence (AI)

AI tools were not used in any part of the article.

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Appendix

Self-efficacy (Chen et al., 2001). 7-point Likert scale: Strongly disagree (1) to strongly agree (7).

1. In my perception, I am able to achieve most of the goals I have set for myself in remote e-working.
2. When facing difficult tasks in remote e-working, I am sure that I will accomplish them.
3. In general, I think I can obtain results that are important to me in performing tasks in remote e-working.
4. I believe that in remote e-working, I can have maximum success in any venture I set out to do.
5. In my perception, I am able to overcome many challenges successfully in the performance of tasks in remote e-working.
6. I am confident that I can effectively perform many different tasks in remote e-working.
7. Compared with other people, I can perform most tasks very well in remote e-working.
8. Even when things are tough, I can perform very well in remote e-working.

Family–work conflict (Gutek et al., 1991). 7-point Likert scale: Strongly disagree (1) to strongly agree (7).

1. When I finish remote e-working, I am too tired to do some things I would like to do at home.
2. In remote e-working, there are many tasks/activities that need to be completed that use my personal time.
3. My family does not like how often I'm preoccupied with my work while I'm at home and/or socializing.
4. My remote e-working activities interfere with the time I would like to spend with family/friends.
5. I often get very tired in remote e-working because of the things I have to do at home.
6. My personal demands are so great that they interfere with my time in remote e-working.
7. My superiors and co-workers don't like how often I become worried about my personal life during remote e-working*.
8. My personal life demands time that I would like to spend in remote e-working.

Anxiety at work (Samma et al., 2020). 7-point Likert scale: Strongly disagree (1) strongly agree (7).

1. I have little interest or pleasure in doing things in remote e-working.
2. In remote e-working, my feelings are low, characterized by anxiety and hopelessness.
3. During the period when I am performing tasks in remote e-working, I find it difficult to fall asleep or stay asleep, or I sleep excessively.
4. During the period when I am performing tasks in remote e-working, I feel tired or low on energy.
5. During the period when I am performing tasks in remote e-working, most of the time, I feel a lack of appetite or overeat.
6. When I'm performing tasks in remote *e-working*, I have bad feelings about myself—for example—that I'm a failure or that I've let myself or my family down.

Task performance (Van Scotter and Motowidlo, 1996; Befort and Hattrup, 2003; Kappagoda et al., 2014).7-point Likert scale: Totally dissatisfied (1) to totally satisfied (7).

1. How often do you direct your actions to do resource-saving work in *remote* e-working? *
2. How often are you given special tasks (trust) to perform in *remote* e-working?

3. How often do you take the initiative to solve problems not defined or not foreseen by your boss in *remote* e-working?
4. How often do you perform tasks within what has been established in remote *e-working*?*
5. From 1 to 7, what grade do you think your boss would give you for your work results in remote *e-working*?*

Emotional intelligence (Law et al., 2004). 7-point Likert scale: Strongly disagree (1) to strongly agree (7).

1. I have a good sense of why I have certain feelings most of the time.
2. I understand my own emotions well.
3. I really understand what I feel.
4. I always know if I'm happy or not.
5. I always know my friends' emotions from their behavior.*
6. I am a good observer of the emotions of others.*
7. I am sensitive to the feelings and emotions of others.*
8. I understand well the emotions of the people around me.
9. I always set goals for myself, and then I try my best to achieve them.
10. I always tell myself that I am a competent person.
11. I'm a self-motivated person.
12. I always encourage myself to do my best.
13. I am able to control my temper and deal with difficulties rationally.
14. I am perfectly capable of controlling my own emotions.
15. I can always calm down quickly when I'm very angry.
16. I have good control of my own emotions.

* Omitted due to low factor loading.

EAMR

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Analysis of the Cost Management System in an Artisanal Microbrewery: An Activity-Based Costing Proposal

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ABSTRACT

This study analyses the cost management system of an artisanal microbrewery, focusing on the degree of formalisation and use of cost information and its adequacy for managerial decision-making. The research adopts a mixed-methods case study approach, combining financial analysis for the 2019–2023 period with two diagnostic questionnaires addressing the maturity of the cost system and the company's technical and productive characteristics. The findings indicate limitations in the current cost management system, particularly in its ability to provide sufficiently detailed and traceable information as operational complexity increases. Based on these findings, the study develops an Activity-Based Costing (ABC) model, operationalised through an Excel-based tool for monthly use. The results suggest that the relevance of an ABC system in manufacturing microenterprises depends on the emergence of specific organisational conditions associated with increasing operational complexity, rather than solely on organisational size. The proposed model is designed to improve the allocation of indirect costs and provide more useful cost information to support managerial decision-making.

KEYWORDS

Activity-Based Costing (ABC), Cost Management, Management Accounting, Manufacturing Microenterprises, Organisational Complexity, Decision-Making

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1. Introduction

In increasingly competitive markets, characterised by high cost volatility and pressure on margins, efficiency in resource management has become a key factor in corporate finance for ensuring business sustainability, particularly for small-scale and artisanal firms. In this context, management accounting—and, more specifically, cost systems—plays a crucial role by providing relevant and timely information that supports better resource allocation and strategic decision-making.

The craft beer industry in Spain has experienced significant growth, with an increase of over 400% in the number of breweries between 2010 and 2020. This expansion has been driven by strategies focused on quality and product differentiation, meaning that artisanal microbreweries do not primarily compete on price. As a result, having accurate cost information becomes essential for assessing profitability and supporting efficient management.

Many microbreweries still operate with poorly standardised processes and informal cost management structures. This makes it difficult to accurately determine product profitability and limits informed decision-making, potentially threatening the sustainability of these firms if management tools are not developed in line with increasing operational complexity.

Castello Beer Factory, located in the Valencian Community, represents a relevant case for examining the challenges of cost management in growing artisanal manufacturing firms. It is an artisanal microbrewery that has experienced sustained commercial growth in recent years, consolidating its position within the local craft beer ecosystem.

The financial analysis conducted identified signs of pressure on profitability and certain operational imbalances which, although not compromising short-term business continuity, suggest the need to reassess how resources are being managed. Accordingly,

this study examines the current cost accounting system based on the firm's own perception regarding its level of formalisation, its limitations, and its use in decision-making.

This research addresses a practical management problem through the diagnosis of the current system and the design of an improvement proposal based on the Activity-Based Costing (ABC) model, aimed at enhancing the quality, traceability, and usefulness of cost information for decision-making. While Activity-Based Costing has been extensively discussed in the literature, empirical evidence on its application in artisanal microenterprises remains limited, particularly in contexts where increasing operational complexity is not accompanied by formal cost management systems. Rather than testing the effectiveness of ABC after implementation, this study focuses on identifying the organisational conditions that justify its adoption in a growing artisanal manufacturing firm.

Within this framework, the study is guided by the following research question: Does the current cost management system in an artisanal microenterprise provide adequate information to support strategic and operational decision-making in a context of production growth?

The study provides applied evidence based on the analysis of a specific case, allowing the identification of limitations in the existing cost management system and their implications for managerial decision-making. Beyond the diagnosis itself, the study contributes to the literature by identifying organisational characteristics—such as increasing operational complexity, product diversity, and the growing relevance of indirect costs—that create the conditions under which an Activity-Based Costing approach becomes particularly appropriate for small manufacturing firms. Rather than proposing ABC as a universal solution for microenterprises, the findings illustrate the contextual factors that support its adoption and demonstrate how a structured cost management model can be adapted to the operational reality of artisanal production environments.

2. Study context

The craft beer industry in Spain has gained significant relevance over the past decade, consolidating itself as a differentiated alternative to the industrial brewing model. This growth has been driven by consumers who value local identity, production quality, and

proximity to the product. Although its market share remains relatively small—around 1.1% of the total national beer market—its economic impact exceeds €350 million annually and is particularly notable in non-capital regions, where more than 85% of breweries are located (Asociación Española de Cerveceros Artesanos Independientes, 2020; Ministerio de Agricultura, Pesca y Alimentación, 2024).

The artisanal model is characterised by small-scale production, a diversified range of styles, the use of local ingredients, and a commercial strategy based on proximity and customer experience. More than 70% of microbreweries operate their own taprooms, and around 80% combine direct sales with mixed distribution channels. This ecosystem fosters a close relationship with customers but also presents significant operational management challenges.

Among the most common issues in the sector are the absence of formal cost accounting systems, difficulties in allocating indirect costs, and limited process standardisation. Decisions are often based on general estimates, making it difficult to calculate real margins by product or sales channel. In addition, the lack of specialised technical personnel limits the implementation of more advanced management control systems. These weaknesses are common even among established firms, affecting their ability to scale and sustain healthy margins in a competitive and fragmented market.

3. Theoretical Framework

3.1. Fundamentals of Management Accounting

Management accounting emerges as a natural evolution of traditional financial accounting. While the latter is oriented towards external users and governed by regulatory principles such as those established by the International Financial Reporting Standards (IFRS), management accounting is designed for internal decision-making. It adopts a strategic and flexible approach aimed at improving operational efficiency and organisational profitability.

Its origins can be traced back to the Industrial Revolution, when the need to control costs in increasingly complex production environments became evident. As noted by Drury (2018), over time more advanced analytical tools have been developed, allowing for a more precise evaluation of resource allocation, process efficiency, and profitability by product or business unit.

The main objective of management accounting is to provide useful information for decision-making, tailored to the specific characteristics and needs of each organisation. According to AECA (2003)[1], "management accounting is a tool that can be used to facilitate the control process through the preparation of information that allows the evaluation and improvement of organisational activities." This definition highlights both its operational and strategic nature, as well as its role in guiding internal decisions towards improved performance. Unlike financial accounting, it is not subject to external regulations, which gives it considerable flexibility to support both strategy and day-to-day operations.

Given its focus on internal decision-making, it is essential to establish appropriate criteria for cost calculation and allocation. The usefulness of the information generated depends largely on the methodology applied, as different costing approaches may lead to different interpretations of efficiency and profitability. In this sense, management accounting is operationalised through costing models, which function as technical tools aligned with managerial objectives.

Various costing models exist, each with specific characteristics that make them more or less suitable depending on the type of organisation, the level of automation, and management objectives:

- **Full costing** (absorption costing): assigns all production costs, both fixed and variable, to products. Its main advantage is that it provides a comprehensive view of total costs, which is useful for financial valuation and long-term strategic decisions. However, it may distort margins when fixed costs are high or capacity utilisation is low (Drury, 2018; Horngren et al., 2015).
- **Variable costing**: includes only variable costs associated with production volume, treating fixed costs as structural. This approach facilitates marginal analysis and supports short-term decisions such as pricing and acceptance of special orders (Kuster, 2021; Drury, 2018).
- **Standard costing**: establishes predetermined costs based on technical or historical data and compares them with actual costs, allowing the identification of

[1] Although the AECA (2003) reference may be considered temporally distant, it is used in this work due to its normative and foundational nature in the definition and classification of costs, whose basic concepts remain valid in current management accounting literature. Furthermore, these approaches continue to be widely cited and used as a framework in subsequent academic and professional work.

variances. It is particularly useful in environments requiring budgetary control and performance evaluation (Horngren et al., 2015).

- **Cost centre accounting**: allocates indirect costs to cost centres, which may correspond to production, service, or departmental units, before assigning these costs to products or other cost objects. This structure supports cost control and performance evaluation by providing information on the costs incurred within different organizational units (Drury, 2018).
- **Activity-Based Costing (ABC)**: links indirect costs to the activities that generate them and subsequently assigns these costs to products based on their consumption of activities. This method increases the accuracy of cost information and is particularly suitable for organisations with a high diversity of products or processes (Kaplan & Cooper, 1998; Bellido, 2003).

In addition, cost management systems can be structured in an organic way, when they are integrated into the general accounting system—ensuring consistency and automation—or in an inorganised way, when they are developed through independent tools such as spreadsheets. The latter offers greater flexibility and adaptability, which is particularly useful for small firms or sectors with low levels of standardisation, such as artisanal production.

Table 1 presents a comparative summary of the strengths, weaknesses, and cost allocation logic of each costing model.

Table 1. Comparison of Cost Models

Costing Model	Strengths	Weaknesses	Technical cost weighting method
Full costing	Comprehensive view of all costs; useful for accounting decisions	It can overload products with high fixed costs, distorting profitability.	All direct and indirect costs (fixed and variable) are added together and distributed proportionally.
Variable costing	Useful for tactical decisions; allows for marginal analysis	By excluding fixed costs, you may underestimate the true total cost of production.	Only direct variable costs are included, generally distributed by production volume.
Standard costing	Facilitates budget control and variance analysis	If it is not updated frequently, it can deviate significantly from the actual cost.	Predetermined costs based on historical or technical data, compared with actual costs to analyze deviations
Cost centre accounting	Facilitates departmental control; useful for budgeting	In integrated processes, it makes it difficult to accurately allocate resources to specific products.	Costs accumulated in centers, then distributed by criteria such as man-hours, energy consumption, etc.
ABC Costing	High traceability; allows for precise allocation of indirect costs	Complexity in implementation and the need to keep the activity map updated	Costs are allocated to specific activities, and then to products according to the consumption of each activity.

Furthermore, Casanova et al. (2021) point out that, in order to understand costs, it is necessary to identify their fundamental components, defining them as the resources required to produce a good or deliver a service. These are typically classified into three categories: direct materials, direct labour, and indirect costs. In relation to the most appropriate costing model, the authors note that each approach involves different accounting treatments, as well as specific advantages and limitations.

3.2. ABC model as an alternative to traditional cost management

The increasing operational complexity of firms, particularly in sectors with high product diversity such as craft brewing, has highlighted the limitations of traditional cost management systems. In this context, Activity-Based Costing (ABC) emerges as an effective alternative to conventional approaches, as it allows for a more accurate identification of the relationship between activities and the resources they consume. The ABC system focuses on analysing which activities generate costs and to what extent each product or line consumes them, significantly improving cost traceability and the assessment of unit profitability.

According to Ramos Farroñan et al. (2020), firms require tools that enable them to identify cost-generating activities in order to improve competitiveness and support decision-making. In this regard, ABC is presented as a key tool for understanding the relationship between activities, costs, and results. The same study cites multiple authors who emphasise the importance of ABC models and their contribution across different stages of management.

This approach represents a shift in how cost generation is understood within organisations. Casanova et al. (2021) argue that the foundation of this model lies in identifying the underlying causes of costs, which are ultimately the activities carried out by the firm in producing or delivering goods and services, and the resources associated with them. Similarly, Bellido (2003) explains that ABC is based on a clear causal relationship: it is not products that directly generate costs, but the activities required to produce them, which in turn consume resources.

From a methodological perspective, Bellido (2003) identifies the key elements required for implementing an ABC system:

- **Resources**: all inputs available to the organisation for carrying out its activities, including labour, materials, energy, infrastructure, and services.
- **Activities**: sets of actions performed to fulfil business functions. Activities consume resources and are the source of indirect costs.
- **Cost drivers**: factors that explain the variation in the cost of an activity and serve as the basis for allocating these costs to cost objects (e.g., labour hours, processed volume, number of orders).

- **Cost objects**: products, services, or customers to which costs are assigned.

Other studies have also outlined the methodological steps required to implement ABC systems, while highlighting certain conditions for successful adoption. Mahal and Hossain (2015) emphasise that strong top management support is essential, and that implementation should be led by a cross-functional team rather than being confined to the accounting department.

Today, ABC has gained relevance in environments characterised by a high diversity of products or services, such as the craft beer industry. By linking costs to the activities that generate them, the model improves cost traceability and profitability analysis by product line, enabling a more detailed understanding of resource consumption and facilitating the identification of non-value-adding activities.

3.3. Importance of Strategic Cost Management for Business Efficiency

The relationship between business strategy and the cost system constitutes a key factor for long-term success. A cost system should not be understood solely as an accounting tool for recording or allocating expenses, but as a strategic component integrated into the firm's management model. Its design and use directly influence the organisation's ability to formulate and implement effective strategic decisions.

When a firm defines its strategy—whether oriented towards cost leadership, product differentiation, or niche specialisation[2]—it requires accurate information about cost behaviour to assess the viability of its decisions. Without this alignment, inefficient decisions may arise, such as maintaining unprofitable products, setting inappropriate prices, or allocating resources to activities that do not create value. As Shank and Govindarajan (1993) note, "strategic cost management involves not only understanding existing costs, but also their structure, causes, and behaviour in relation to strategic decisions."

In this regard, Kaplan and Norton (1996) highlight that strategy-oriented organisations require both financial and non-financial indicators aligned with their objectives, with cost systems representing a key source of such information.

[2] These are different strategies a company can adopt depending on the industry or market in which it competes. What should be evaluated is the company's internal capabilities and competitive advantages. The management decisions a company makes will depend on the strategy it pursues.

Aligning strategy with the cost system allows firms to focus their efforts on activities that genuinely contribute to value creation. In this sense, a well-designed cost system acts as a managerial guide, providing reliable information on efficiency, profitability, and performance, and supporting decisions consistent with the firm's competitive positioning.

From this perspective, strategic cost management goes beyond the ex post recording of financial information and becomes a tool that directly contributes to business efficiency. As Gómez Ortiz (2018) argues, strategic cost management represents a broader approach to management accounting, incorporating cost analysis and value creation into decision-making.

Finally, recent literature in management control extends this perspective through the concept of Real Earnings Management (REM), understood as a set of operational decisions related to production, costs, or investment aimed at influencing firm performance. In this sense, García Osma, Gómez-Conde and López-Valeiras (2022) show that when control systems are used interactively and aligned with strategy, they contribute to improved efficiency and future performance by facilitating the identification and implementation of actions consistent with strategic objectives.

3.4. Impact of Strategic Cost Management in the Brewing Industry

The food industry, and particularly artisanal production, defines its strategic decisions based on the positioning it seeks to achieve within its sector. Gómez Ortiz (2018) relates competitive positioning to the relative position a firm occupies in its market and highlights product differentiation as a potential source of competitive advantage. This perspective is particularly relevant in artisanal contexts, where differentiation may be linked to product characteristics and the value perceived by customers.

In this context, artisanal firms must define their operational objectives in line with the activities that consume specific resources, which can be systematically identified, measured, and managed to sustain competitive advantage.

By way of illustration, the study conducted by Lees, Ellen and Brodie (2013) in a large Australian brewery shows that production control systems are oriented towards managing key operational cost drivers, such as energy efficiency, loss reduction, and process optimisation. This highlights that cost driver management extends beyond ex post accounting control and is directly embedded in operational processes.

At a smaller scale, Kuster (2021) analyses the economic viability of Uruguayan microbreweries through a multiple case study. In the absence of formal cost systems, the study applies variable costing and marginal analysis, identifying contribution margin per litre and break-even point as key indicators. The findings show that while contribution margins are relatively homogeneous, the production volume required to reach break-even varies significantly depending on the structure of fixed costs. In particular, firms with more developed organisational structures require higher activity levels to sustain profitability.

In this regard, Kuster (2021) concludes that profitability is not random but depends on the identification and management of key economic variables, allowing for a systematic analysis of their impact on results.

Overall, the evidence confirms that strategic cost management is a key factor in improving operational efficiency and profitability in the craft brewing sector. The presence of formal cost systems enables firms to identify activity thresholds, optimise resource use, and support more informed decision-making.

However, implementing such systems presents challenges in real contexts, particularly when production processes are diverse and resources are not consumed homogeneously. Traditional costing systems have been criticised for allocating indirect costs based on general criteria, which may distort cost information and negatively affect strategic decisions (Kannaiah, 2015).

Moreover, the literature indicates that inadequate allocation of indirect costs and poorly defined cost drivers hinder the generation of reliable cost information (Ramos Farroñan et al., 2020). As a result, these approaches fail to accurately reflect the economic reality of products, limiting profitability analysis (Casanova et al., 2021).

Given these limitations, it becomes necessary to adopt approaches that link costs to the activities that actually consume resources, in order to improve the accuracy and usefulness of cost information for managerial decision-making.

Hypothesis

In a context of productive growth, the current cost management system of Castello Beer Factory does not provide sufficiently precise, structured or traceable information to effectively support strategic and operational decision-making

4. Methodology

4.1. Research Design

This study is developed under an applied exploratory-descriptive research approach, focused on Castello Beer Factory, an artisanal microbrewery located in the Valencian Community. Its purpose is to diagnose the limitations of the current cost management system and to design a proposed system based on the Activity-Based Costing (ABC) model, adapted to the company's operational reality. The study is based on the use of multiple sources of information, combining both quantitative and qualitative evidence, and was conducted between July 2025 and January 2026.

The selection of Castello Beer Factory is justified by its representativeness as a growing artisanal microbrewery, making it an appropriate case for analysing the limitations of cost management systems in this type of organisation.

In a first stage, a financial analysis was carried out based on the company's historical financial statements for the years 2019–2021 and 2023, with the aim of identifying potential profitability pressures and assessing the need to review the cost system. In a second stage, diagnostic instruments specifically designed for this study were applied. These consisted of two questionnaires combining numerical scales from 1 to 10—allowing quantitative analysis—with open-ended questions aimed at capturing qualitative information on management practices and production processes.

Additionally, a data collection form developed in Excel was used to systematise internal data related to production, resource consumption, and costs. This allowed for a better understanding of the company's operational processes and provided an empirical basis for designing the proposed cost management model.

These sources enabled the integration of financial, operational, and managerial evidence, offering a more comprehensive view of both the company's economic performance and the limitations of its current cost management system.

The proposal is materialised in a tool fully developed in Excel, based on an ABC system and designed specifically for this company. Its construction combines elements such as macro-based automation, dynamic calculation formulas, and cost segmentation. The model is structured for monthly use, allowing the estimation of unit costs and margins in real time to support decision-making.

It should be noted that the proposed model corresponds to a conceptual and operational design developed from the information collected, and not to a system implemented or tested under real operating conditions. Therefore, the tool should be understood as a methodological approach aimed at improving cost management, rather than as empirical evidence of its impact on the organisation. Accordingly, its results should be interpreted in potential terms.

4.2. Data collection instruments

To evaluate the cost management system of the company under study, two instruments specifically designed for this research were applied: Questionnaire No. 1 on Cost System Maturity and Questionnaire No. 2 on Technical-Productive Aspects. The questionnaires combined open-ended, multiple-choice, and scale-based questions, allowing for the collection of both quantitative and qualitative information.

Questionnaire No. 1 is structured into four main dimensions: (i) cost recording and calculation by product, (ii) margin control, (iii) tools and processes, and (iv) use of information for decision-making. Each dimension includes a set of questions evaluated on a scale from 1 to 10, where higher values indicate a greater level of system formalisation and use. Some questions also include categorical options to capture the level of development of management practices, such as the use of information systems, frequency of review, and degree of integration of cost information into decision-making.

Questionnaire No. 2 focuses on collecting detailed information about the company's operational functioning. It addresses aspects related to production processes, resource consumption, cost structure, control practices, and the use of technological tools. This instrument combines quantitative scales and qualitative questions, allowing both the degree of process formalisation and the specific characteristics of the production system to be captured. This information is essential for understanding the company's operational logic and supporting the design of the proposed cost model.

The diagnostic instruments were specifically developed for this study based on a review of the literature on management accounting and cost systems, and adapted to the operational context of the company. Given the applied nature of the study, validation was carried out through internal review and discussion with the individual responsible for operational and financial management, ensuring clarity, relevance, and applicability of the questions.

The questionnaires were completed by the company's management, specifically by the partner responsible for operational and financial management, who has comprehensive knowledge of both production and management processes. The instruments were administered in digital format (Google Drive), allowing for autonomous completion by the respondent. Subsequently, follow-up clarifications were conducted to ensure the correct interpretation of the responses.

4.3. Data processing and analysis

The responses were standardised on a common scale from 1 to 10, where 1 represents the absence of the evaluated practice and 10 its full implementation, ensuring comparability of results. Data processing and analysis were carried out using Excel templates specifically designed for this study, allowing the information to be grouped by dimensions and represented graphically, facilitating the identification of strengths and weaknesses in the system.

For interpretation, results were classified into three levels: adequate (7–10), intermediate (4–6.9), and deficient (1–3.9). The consistency of the analysis is supported by the prior design and review of the instruments, as well as by the use of a standardised methodology that reduces interpretative bias and enables a coherent evaluation of the cost management system.

5. Field Analysis – Case Study of Castello Beer Factory

5.1. General Description of the Company[3]

Castello Beer Factory is an artisanal microbrewery based in Castelló de la Plana, in the Valencian Community. Founded in 2016, it originated as an initiative by three partners with previous homebrewing experience, who decided to professionalise their project through a proposal focused on product quality, creative design, and a strong commitment to local identity.

The company operates in the Polígono Estadio industrial area, where it has an artisanal production facility as well as a direct-to-consumer space. Its product portfolio includes a wide range of beer styles, from IPAs to special edition lagers, produced in controlled batches with a strong emphasis on differentiation. Over time, Castello Beer Factory has

[3] Information compiled from Castelló Beer Factory, n.d.and Okasional Beer, 2019.

consolidated its position as a recognised player within the regional craft beer sector, maintaining steady growth both in production volume and brand recognition.

Current annual production is approximately 80,000 litres, placing the company within the microbrewery segment according to standard industry classifications. This production scale allows for a high level of process control, but also requires increasing efficiency in resource use and a deeper understanding of actual operating costs.

In terms of organisational structure, Castello Beer Factory is characterised by a shared management model among its founding partners, who are involved not only in production activities but also in commercial, administrative, and strategic functions. While this structure enables agile decision-making, it also highlights the need for technical tools to support economic and financial analysis.

The company follows a segmented commercial strategy, differentiating between retail and wholesale customers, and adapting pricing policies and distribution channels accordingly. This approach has enabled the firm to build a diversified sales base, combining specialised retail outlets, bars, and direct sales, both on-site and online.

5.2. Financial Diagnosis

Financial analysis constitutes a key tool for understanding a company's real economic situation beyond superficial accounting results. Its application allows the identification of structural imbalances, operational weaknesses, and opportunities for improving resource allocation. In the context of this study, the analysis of the main financial indicators of Castello Beer Factory for the years 2019, 2020, 2021, and 2023 provides relevant evidence supporting the need to review the company's cost management system.

The methodology applied includes both vertical and horizontal analysis. Vertical analysis is used to determine the relative weight of each financial statement item within each year, while horizontal analysis allows for comparison over time through percentage variations between periods. The analysis covers key areas such as solvency and indebtedness, liquidity and payment capacity, and profitability and performance. For each area, the most relevant financial ratios are presented to support the analysis and its interpretation.

This financial evaluation enables an objective diagnosis of the company's current situation and provides an empirical basis for proposing improvements, such as the implementation of a more precise and strategically oriented cost management system.

It is important to note that this study does not aim to intervene in or provide recommendations regarding the company's financial strategy, investment decisions, or financing structure. Its scope is strictly limited to the domain of management accounting, with the objective of providing tools that allow the company to better understand how resources are allocated, which activities consume the most costs, and which products or business lines generate higher or lower levels of profitability.

5.2.1. Solvency and Indebtedness

Solvency and indebtedness indicators allow the assessment of a company's ability to meet its financial obligations and sustain its operations in the long term. A balanced financial structure combines an appropriate proportion of debt and equity, avoiding excessive exposure to financial risk. Table 2 presents the main solvency and indebtedness ratios.

Table 2. Solvency and debt ratios

Indicator	**2023**	**2021**	**2020**	**2019**
Warranty (Distance to bankruptcy)	3.91	4.03	4.01	2.45
Total Debt	0.34	0.33	0.33	0.69
Long-Term Debt	0.00	0.03	0.03	0.03
Short-Term Debt	0.34	0.30	0.30	0.66

The guarantee ratio reached a value of 3.91 in 2023, well above the range generally considered optimal (1.5–2.5). This indicates that the company holds sufficient assets to cover its liabilities and shows an upward trend since 2019, reducing bankruptcy risk. However, it may also reflect potential inefficiencies in asset utilisation and possible underuse of available resources.

Total indebtedness remains low (0.34 in 2023), suggesting a conservative capital structure and limited reliance on external financing. The company does not hold long-term debt, relying entirely on equity for its permanent financing structure. However, 100% of its liabilities are short-term, which exposes the firm to significant short-term financial pressure and represents a potential operational risk.

Overall, the company shows strong solvency, but its liability structure is highly concentrated in the short term, limiting its financial flexibility.

5.2.2. Liquidity and Payment Capacity

Liquidity measures the company's ability to meet its short-term obligations using its current assets. It is a key indicator of operational health and day-to-day financial stability. Table 3 presents the main liquidity and payment ratios.

Table 3. Liquidity and payment ratios

Indicator	2023	2021	2020	2019
Working Capital	54 676	36 436	21 226	927
General Liquidity	3.04	2.60	2.09	1.03
Acid Test	2.37	2.60	2.09	0.92
Immediate Treasury	1.17	1.48	0.36	0.23
NOF	79 108	59 196	40 716	28 285

In 2023, the company's working capital amounts to €54 676, showing a positive trend since 2019 and initially suggesting a solid liquidity position. However, operating working capital requirements reach €79 108, exceeding available working capital. This indicates that the company is not fully financing its operating cycle with permanent resources.

This imbalance suggests that apparent liquidity is being absorbed by the operating cycle itself, creating a financial gap that may affect the company's medium-term stability if not actively managed.

Such a mismatch could compromise long-term stability, potentially requiring the firm to seek alternative financing sources, restructure its asset financing strategy, or adjust its operational management to reduce working capital requirements. However, these aspects fall outside the scope of this study and are therefore not analysed in detail[4].

5.2.3. Performance and Profitability

Profitability is the most direct measure of a company's economic performance. Indicators such as EBITDA, ROA, and ROE allow the assessment of how efficiently resources are used to generate returns. Table 4 presents the main performance and profitability ratios.

[4] The ultimate objective of this study is not to intervene or issue recommendations on the company's operational financial management, such as its financing decisions, capital structure, or on possible restructuring strategies for working capital requirements (WCR).

Table 4. Profitability Ratios

Indicator	2023	2021	2020	2019
EBITDA	-12 073	14 275	22 161	7 346
ROA	-17.99%	6.86%	25.99%	10.35%
Margin	-8.39%	2.88%	8.34%	4.23%
ROE	-20.24%	4.84%	23.59%	10.85%
Financial Leverage	1.32	1.33	1.33	1.69
Net turnover (euros)	225 172	237 682	265 724	173 470

Profitability indicators show a significant deterioration in 2023. EBITDA turns negative (-€12 073), breaking the positive trend observed in previous years and reflecting a loss of operating performance capacity. This deterioration is reinforced by a negative operating margin (-8.39%), in contrast to the positive values recorded between 2019 and 2021, despite net revenue remaining at relatively high levels.

Similarly, both economic (ROA) and financial (ROE) profitability become negative in 2023 (-17.99% and -20.24%, respectively), indicating a destruction of value from both asset and equity perspectives. Financial leverage remains relatively stable at around 1,3, suggesting that the decline in profitability is not driven by increased indebtedness, but rather by a loss of operational efficiency.

The financial analysis highlights tensions in profitability and a deterioration in key indicators that are not explained by a decline in sales. However, this type of evidence does not allow for direct causal conclusions regarding the origin of these changes. Factors such as product mix variations, pricing strategies, or changes in operating costs may also explain these results.

In this context, the analysis should be interpreted as an indication of the need to improve the quality and level of detail of cost information, rather than as direct evidence of inefficiencies in the current cost management system.

5.3. Cost Management System Analysis

Based on the financial analysis presented in the previous section, several elements emerge that suggest the need to review and analyse the cost management system of Castello Beer Factory. This analysis aims to assess the degree of formalisation, the limitations in cost

allocation, and the extent to which available information is used, in order to better understand the factors that may be affecting the quality of information used in decision-making.

The company has demonstrated itself to be a solid project, with a sustained growth trajectory in revenues and a progressive consolidation within the craft beer sector. This commercial dynamism and business expansion are clear indicators of a value proposition well received by the market, allowing the company to strengthen its position despite economic disruptions such as those associated with COVID-19. However, this same growth entails increasing operational complexity and, consequently, requires greater precision in the internal management of resources.

The financial results of the most recent period reveal signs of tension in terms of profitability and economic efficiency. Although the company has increased its sales, the resources employed are not generating proportional returns. This highlights the need for more detailed and structured information to better understand cost behaviour and its impact on performance. In this context, analysing the cost management system becomes particularly relevant, especially regarding how costs are recorded, allocated, and used, with the aim of improving the traceability, quality, and interpretability of the available information.

In this sense, reviewing the current cost management system is not driven by an urgent situation, but rather by a strategic opportunity to improve efficiency, enhance the traceability of resource consumption, and strengthen the informational basis for decision-making in a context of business growth.

5.3.1. Overall Diagnostic Results

The integrated results derived from the questionnaires applied to the company allow for a clear identification of both strengths and weaknesses in the cost management system of Castello Beer Factory. The main findings are presented below.

Figure 1 presents the results of Questionnaire No. 1 on Cost System Maturity by analytical block. The results indicate that the dimension perceived as most important and most developed within the cost management system is its use as a support for managerial decision-making.

Figure 1. Results of Questionnaire No. 1 by analytical block

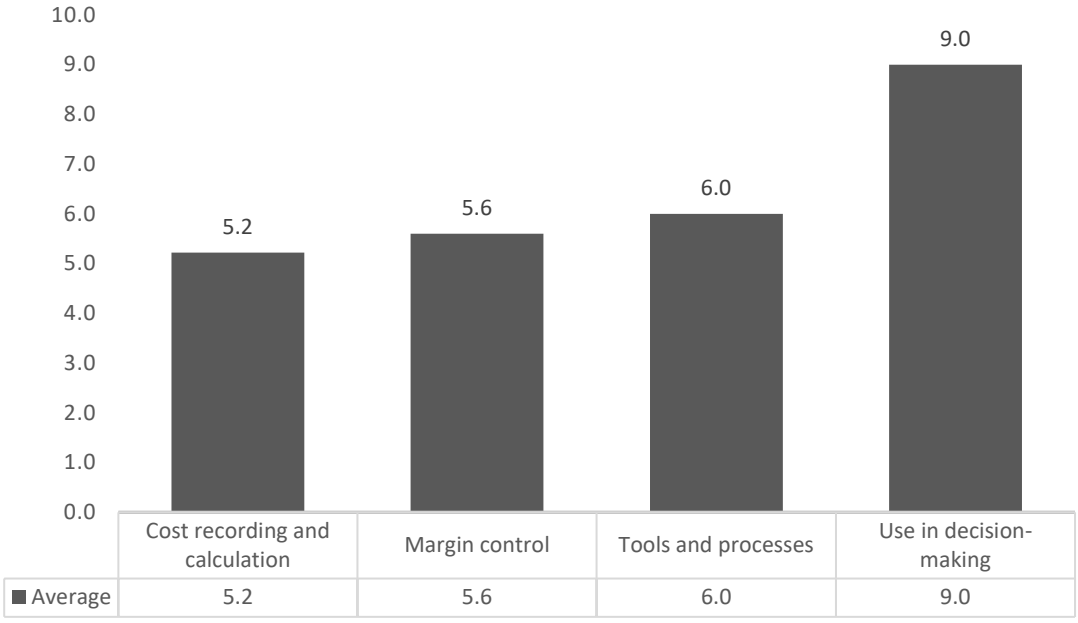
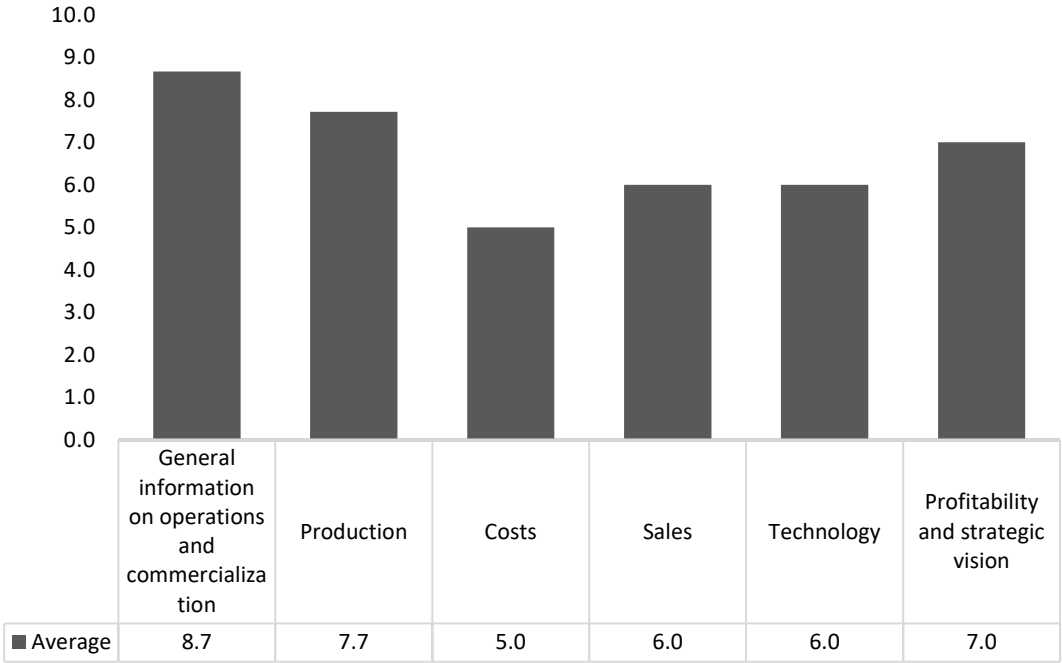


Figure 2 presents the results of Questionnaire No. 2 (technical–productive) by analytical block. The results show that the cost dimension is perceived as the weakest and least developed within the production process.

Figure 2. Results of Questionnaire No. 2 by analytical block



This highlights a relevant point: while the cost management system is perceived as highly valuable for decision-making at the managerial level, the operational dimension of costs within the production process appears to be the weakest and therefore requires significant improvement.

Based on the questionnaire results, the following strengths can be identified:

- **Direct cost management:** The company maintains relatively clear control over raw material costs, which form the basis of its current system.
- **Preliminary unit cost estimation:** Although no formalised procedure exists, the company performs approximate calculations of unit costs by product, providing a starting point for further development.
- **Identification of production stages:** The team clearly recognises the main stages of the production process (mashing, fermentation, maturation, and packaging), facilitating the mapping of key activities.

The main weaknesses identified are as follows:

- **Separation of fixed and variable costs:** There is no systematic procedure to distinguish between them, limiting profitability analysis and break-even estimation.
- **Inclusion of indirect costs:** Costs such as distribution, marketing, and administration are only partially considered or excluded, leading to an underestimation of total costs.
- **Production efficiency control:** There are no detailed records of time or energy consumption by production stage, hindering the identification of cost drivers and the measurement of operational efficiency.
- **Margin tracking:** Although selling prices and basic costs are known, there is no structured monitoring of margins by product or regular break-even calculations.

The analysis also reveals significant structural limitations. The absence of a systematic distinction between fixed and variable costs, the limited incorporation of indirect costs, the lack of production efficiency records, and the absence of standardised procedures for unit cost calculation indicate that the current information lacks the precision and reliability required to support strategic decision-making.

In practical terms, this means that the company is able to manage its day-to-day operations, but does not have the necessary control tools to accurately assess the profitability of each product or to anticipate financial scenarios.

Finally, according to the scale defined in this study, the overall average places the cost management system at an intermediate level (between 4 and 6.9). This suggests a system that functions partially and provides operational utility, but presents limitations that restrict its impact on management. This result confirms that the current system can be improved to better respond to the competitive challenges of the craft beer sector.

Overall, the analysis identifies specific areas for improvement and clearly establishes the need to move towards a more robust, transparent, and strategically aligned cost management system.

6. Cost Management System Proposal

6.1. Methodological Considerations

The proposed tool was designed taking into account the actual operational context of Castello Beer Factory, with the aim of balancing methodological rigour and ease of use. Although the model is grounded in the principles of Activity-Based Costing (ABC), its structure has been adapted to the reality of a microenterprise that lacks both an Enterprise Resource Planning (ERP) system and a formal cost accounting framework. Consequently, the design prioritises an accessible, user-friendly, and replicable format that is compatible with the management capabilities of this type of organisation.

The model was developed using information provided by the company through structured data collection forms and exploratory meetings with members of the management team. This process enabled the development of a proposal that is methodologically consistent with the theoretical framework of the study while remaining closely aligned with the specific characteristics of the production process under analysis. The model was developed between 1 July 2025 and early January 2026.

The model has been designed for periodic use, preferably on a monthly basis, allowing continuous cost monitoring and facilitating comparisons across reporting periods. Furthermore, because it is implemented in Microsoft Excel, it offers sufficient flexibility to incorporate adjustments, improvements, and scenario simulations as the company's management needs evolve.

Beyond the methodological aspects associated with the design of the tool, the findings also provide broader insights into the organisational conditions under which an Activity-Based Costing system may be particularly suitable for small manufacturing firms. These theoretical implications are discussed in the following section.

6.2. Proposal Contextualisation

As a complement to the diagnosis carried out, a production data collection template developed in Excel was used, together with internal documentation provided by the company. This allowed the information obtained through the questionnaires to be expanded and refined, facilitating a more detailed understanding of the organisation's operational functioning. Based on these results, the feasibility of developing a simple cost management model adapted to the company's operational reality is confirmed.

The objective of the proposal is to improve the existing cost management system by strengthening those areas with a lower level of development and providing the company with a more precise and systematic operational tool. Rather than aiming to replace an ERP system or a formal accounting structure, the proposed model is conceived as a practical, low-cost solution with high managerial value, designed to facilitate cost analysis and support short-term operational decision-making.

In the case of Castello Beer Factory, the implementation of an Activity-Based Costing (ABC) model is proposed as a methodologically coherent alternative, consistent with the characteristics identified during the diagnostic phase. The choice of this system is grounded in the specific features of the company's production process. In particular, the existence of multiple production stages, the heterogeneous consumption of indirect resources, and the difficulty of allocating these costs using simple criteria make it necessary to adopt a model that allows for greater precision in cost allocation. These characteristics are consistent with the theoretical conditions that justify the applicability of ABC in smaller organisations with relatively complex production processes.

In the context of the company analysed, and more broadly within artisanal microbreweries, a differentiation strategy implies that each product presents specific characteristics in terms of production process, time requirements, input usage, and control needs. Unlike standardised production environments, this operational heterogeneity makes it difficult to apply simple allocation criteria for indirect costs.

The ABC approach allows indirect costs to be linked to the activities that generate them, providing greater traceability and detail in cost information, and enabling a more accurate understanding of the cost structure of each product. In this way, the proposal is presented as a coherent solution aligned with the observed operational complexity, the information needs identified in the diagnostic phase, and the objective of improving the quality of information available for decision-making.

The main scope of the proposal is presented below:

- To improve cost traceability by activity and product.
- To facilitate the analysis of margins by product line.
- To identify the impact of indirect costs and how each production activity affects unit costs.
- To enable practical simulations and assess the impact of operational decisions.
- To systematise the monthly monitoring of cost margins, generating comparable historical information.
- To serve as a basis for future automation or integration with more advanced systems.

6.3. General Description of the Proposed Model

The system is structured under the ABC approach and operationalised through a spreadsheet specifically designed for Castello Beer Factory. This approach enables a more precise allocation of indirect costs to products based on actual activity consumption, in line with the theoretical foundations of activity-based costing developed in the theoretical framework of this study. Figure 3 illustrates the activities defined within the model.

Figure 3. Illustration of the activities defined in the system

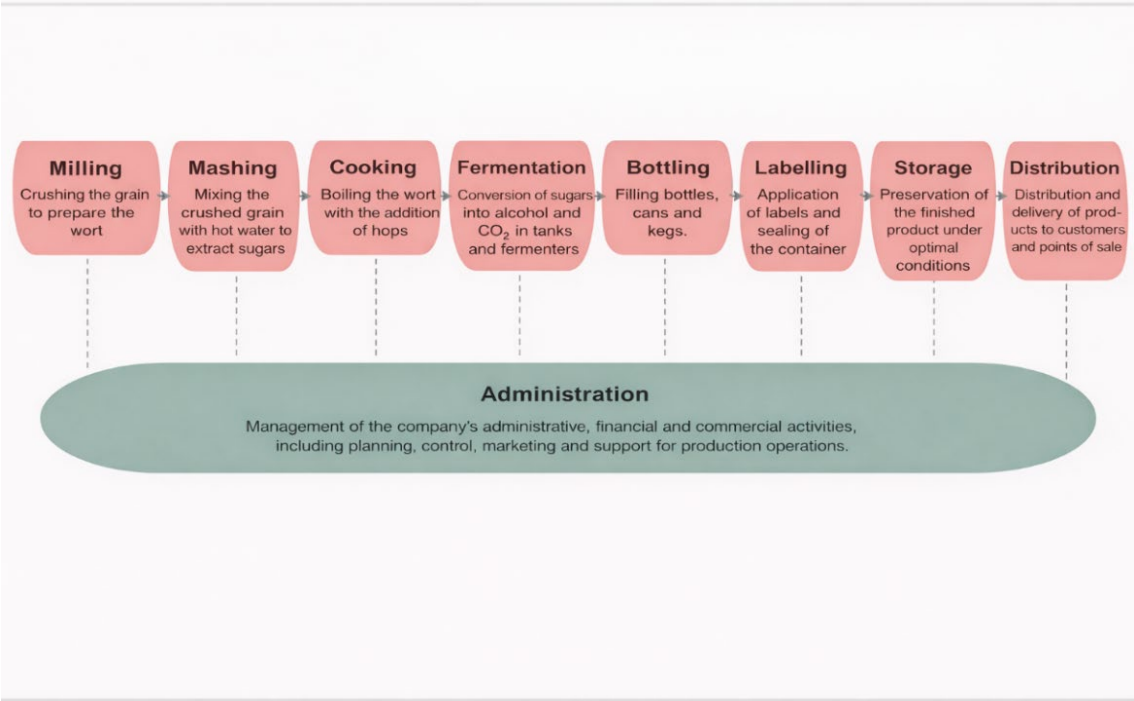
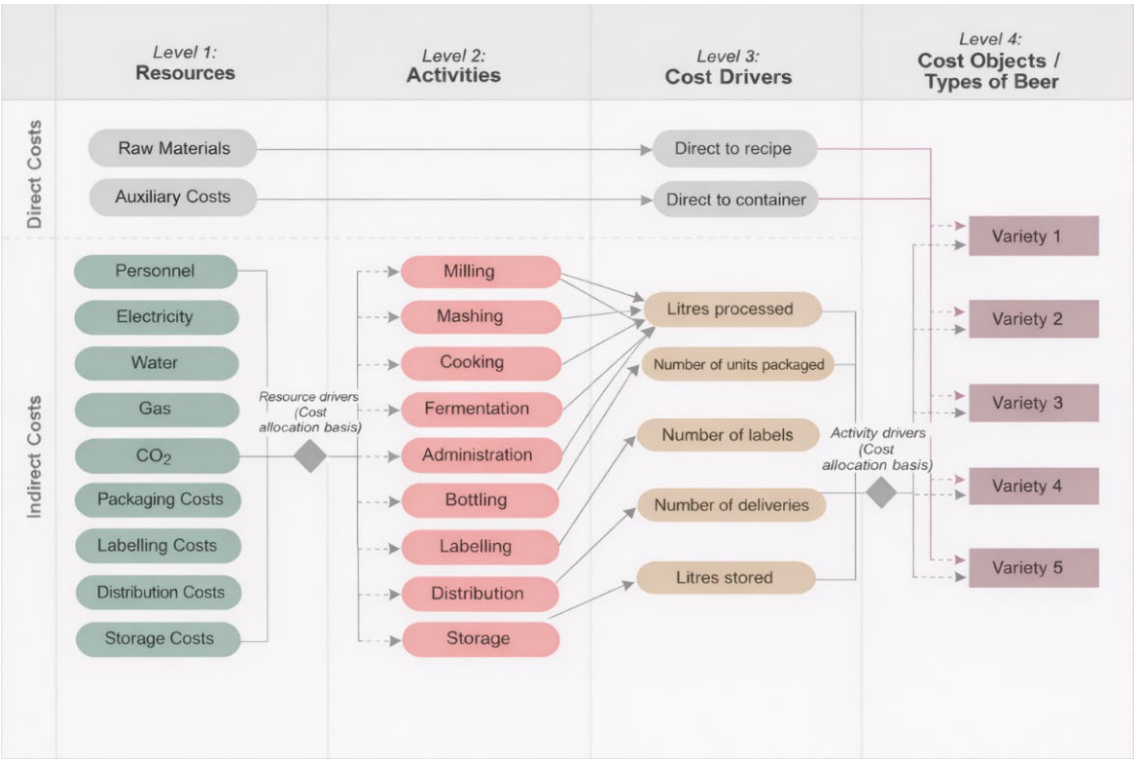


Figure 4 presents the overall functioning of the system and the ABC allocation logic applied to Castello Beer Factory.

Figure 4. Cost allocation flow under the ABC model



The figure summarises the logic of the proposed cost model. Once activities are defined, the system is organised through a hierarchical allocation structure characteristic of the

ABC approach. Initially, the company's resources are classified into direct and indirect costs, with direct costs assigned directly to cost objects according to their specific consumption.

Subsequently, indirect resources are allocated to the different production activities based on their relative consumption, using resource drivers that allow costs to be accumulated at the activity level. Each activity is then associated with a cost driver, which acts as the allocation criterion to assign accumulated activity costs to the different types of beer produced, according to their actual consumption of each activity.

6.4. Operational Structure of the Proposal

The system is composed of several interconnected Excel sheets, each fulfilling a specific role within the model's workflow. Some sheets are visible to the end user in daily use, while others remain hidden. The latter perform all underlying calculations and serve as a structural base for adjustments or operational revisions of the tool.

The following are the sheets visible to the user, representing the operational interface of the proposal.

6.4.1. User Interface

This is the main interaction sheet and serves as the monthly working environment. Its design has been optimised to be intuitive, visually clear, and easy to use, even for users without specialised accounting knowledge. The interface is intended for regular use by the management team, allowing data input and the immediate generation of key results.

It is structured into three main areas:

- Data input area

This section is designed so that the user only enters the strictly necessary information. Editable cells are clearly marked, while the rest are protected to prevent errors. Inputs include production volume by product, number of units, direct costs for the period, and other operational variables. This design allows any team member to complete the information quickly and without the risk of altering formulas.

- Product-level results area

This section automatically displays unit costs, selling prices, and margins per litre for each product. The information is updated in real time as data is entered and is presented in clear tables with values expressed in euros and percentages, facilitating analysis.

- Monthly summary area

This section provides a consolidated view of key monthly indicators, including total production volume, total costs (direct and indirect), sales value, total margins, and overall profitability. It functions as a dashboard for rapid performance evaluation.

At the bottom of the sheet, there is a button that activates a macro named "Save current month," which automatically transfers the data to the historical summary sheet and the charts sheet. This action can be repeated as needed, as each execution generates a new entry with the exact date and time, while removing duplicates to retain the most updated version. This enables precise chronological tracking of each monthly iteration or adjustment.

6.4.2. Historical Summary

This sheet automatically compiles and organises monthly results once the "Save current month" macro is executed. It records each iteration with date and time, allowing for longitudinal performance tracking. Its structure facilitates period comparisons and trend analysis in terms of profitability and efficiency.

6.4.3. Results Charts

This sheet provides automated visualisations based on the data consolidated in the historical summary. It allows for a clear and rapid analysis of key performance indicators over time and is designed to support decision-making through an intuitive visual approach.

6.4.4. Product Detail

This sheet presents a detailed breakdown of unit costs by product, distinguishing between direct costs and indirect costs allocated through ABC drivers.

It allows for the analysis of how each beer variety contributes to total costs and facilitates the identification of profitability differences between products, particularly at the level of each activity included in the model.

7. Discussion and Theoretical Contributions

7.1. Theoretical Contributions

Based on the analysis of an artisanal brewing microenterprise, this study shows how organisational development can progressively modify managerial information needs. The introduction of new products, the differentiation of production processes, the increasing proportion of indirect costs, and the need to assess the profitability of individual products reduce the ability of traditional cost allocation systems to accurately represent resource consumption. Under these conditions, an Activity-Based Costing (ABC) system becomes a more appropriate management tool.

From this perspective, the study provides evidence suggesting that the adoption of an ABC system should not be understood as a decision determined exclusively by organisational size, but rather by the level of operational complexity achieved and the evolution of the organisation's information needs. In this regard, the findings indicate that the relevance of a cost management system depends on the emergence of specific organisational conditions that create an increasing demand for more accurate, traceable, and disaggregated cost information to support managerial decision-making.

The literature on Activity-Based Costing has devoted considerable attention to the technical requirements for its implementation, such as the identification of activities, resources, cost drivers, and cost objects. From this perspective, the feasibility of the model is generally assessed according to an organisation's ability to develop and maintain this information structure. The findings of this study complement this perspective by suggesting that the key issue extends beyond the technical capability to implement an ABC system and instead lies in determining whether the organisation genuinely requires the information that such a system provides to support management. Consequently, the decision to adopt an ABC system should be based not only on the feasibility of its implementation, but also on the need to gain a more accurate understanding of how activities consume resources and how this resource consumption affects the profitability of products and processes.

In this regard, the findings suggest that organisational development constitutes the mechanism through which managerial information needs are progressively transformed. As operational complexity increases, organisations require cost management systems capable of representing resource consumption more faithfully and improving cost

traceability. From this perspective, the adoption of an ABC system can be understood as a response to the evolution of information needs arising from organisational development, rather than as an automatic consequence of organisational growth or production volume.

In addition to this theoretical contribution, the study also provides a methodological contribution by developing a proposal that adapts the principles of Activity-Based Costing to a manufacturing microenterprise through a low-cost and user-friendly management tool. This adaptation demonstrates that the conceptual foundations of management accounting can be effectively transferred to organisations that lack Enterprise Resource Planning (ERP) systems and formal cost accounting structures while still providing a sufficient level of detail to support managerial decision-making without introducing unnecessary technical complexity.

Overall, these findings contribute to the management accounting literature by extending the discussion on the adoption of Activity-Based Costing systems, proposing that their relevance should be analysed from the perspective of the evolution of managerial information needs resulting from increasing organisational complexity, rather than being assessed solely on the basis of organisational size or production volume. Taken together, the findings provide a conceptual foundation that may guide future research on the adoption of Activity-Based Costing systems in small manufacturing firms and other productive contexts with similar organisational characteristics.

7.2. Practical and Managerial Implications

From a managerial perspective, the findings of this study indicate that increasing operational complexity requires management tools capable of transforming available data into meaningful information for decision-making. In this context, structuring cost information plays a fundamental role in improving the understanding of organisational performance and strengthening management processes. In line with García Osma, Gómez-Conde, and López-Valeiras (2022), the availability of more systematic, relevant, and management-oriented information may contribute to improving decision quality and, ultimately, organisational performance.

As widely recognised in the Activity-Based Costing (ABC) literature, the application of an ABC system enables organisations to understand more accurately how different activities consume resources and how indirect costs affect the profitability of individual products. However, this information becomes particularly relevant in small

manufacturing firms, where relatively small variations in production costs, resource utilisation, or product portfolio composition may significantly affect both profit margins and the organisation's ability to sustain its competitiveness over time. From this perspective, an ABC system provides a more robust analytical basis for reviewing pricing policies, evaluating production processes, and allocating resources according to the economic contribution of each activity and product.

The main practical value of an ABC system in microenterprises does not lie solely in improving the accuracy of product cost calculations, but in providing the information required to identify the economic variables that determine business profitability. As noted by Kuster (2021), understanding these variables constitutes a key element for the management and economic viability of craft microbreweries. In this regard, the findings of the present study suggest that an ABC system becomes particularly valuable in microenterprises whose growth is accompanied by increasing operational complexity, characterised by the introduction of new products, the diversification of activities, the differentiation of production processes, and a growing proportion of indirect costs. Under these conditions, having access to information that explains how activities consume resources and how such resource consumption influences profitability provides a stronger basis for management and may contribute to strengthening the long-term economic sustainability of the organisation.

7.3. Study Limitations

The findings of this study provide applied evidence on the organisational conditions under which an Activity-Based Costing (ABC) system may become appropriate in an artisanal manufacturing microenterprise, as well as on the design of a methodological proposal adapted to that context. Nevertheless, the scope of these findings should be interpreted in light of the characteristics of the research design and the information available for the development of the proposed model.

First, the study is based on the analysis of a single case, which enabled an in-depth diagnosis of the company's cost management system and the development of a proposal tailored to its operational reality. Consequently, the findings should be understood as applied evidence derived from a specific organisational context, whose value lies in identifying organisational conditions that may be transferable to firms with similar characteristics rather than in providing statistically generalisable conclusions.

Second, the proposed model was developed using the information made available by the company. Although relevant data were obtained regarding raw materials, auxiliary inputs, production, and certain indirect costs, part of this information was not sufficiently systematised or disaggregated to identify resource consumption at the activity level directly. Consequently, the construction of the model required the use of assumptions and allocation criteria consistent with the available information, which may be refined as the company develops more detailed operational records.

Finally, although this study suggests that certain organisational conditions may justify the suitability of an ABC system in small manufacturing firms, this interpretation is derived from the analysis of a single case and from a proposal that has not yet been implemented under actual operating conditions. Consequently, both the practical usefulness of the proposed model and the validity of the organisational conditions identified in this study should be examined through future research that evaluates the implementation of the model in real operating environments and explores whether these conditions are also observed in other small manufacturing firms with similar organisational characteristics.

Conclusions

This study highlights the relevance of strategic cost management as a key element for improving operational efficiency and contributing to organisational performance. The literature recognises that cost management systems are not merely accounting tools for recording transactions, but essential mechanisms for understanding resource consumption, identifying inefficiencies, and generating information that supports managerial decision-making. In this sense, the quality of cost information directly influences organisations' ability to respond to increasing operational complexity and sustain their long-term competitiveness.

The analysis of Castello Beer Factory reveals a growing gap between the operational complexity achieved by the company and the capacity of its cost management system to provide useful information for decision-making. This limitation reflects the difficulty of the current system in organising and transforming the available information into structured, reliable, and management-oriented data. Likewise, the diagnosis suggests that the existing system is adequate for day-to-day operational control but presents limitations in supporting decisions related to profitability analysis, pricing, and resource allocation.

Taken together, these findings provide an affirmative answer to the research question by indicating that the current system does not provide sufficiently structured information to support decision-making in a context of increasing operational complexity.

Based on these findings, the study develops an Activity-Based Costing (ABC) proposal adapted to the operational characteristics of the analysed company. Rather than presenting ABC as a universal solution for small firms, the study illustrates how this approach can be adapted to organisations in which the evolution of their operations generates information requirements that exceed the capabilities of traditional cost allocation systems.

One of the main findings of this research is that the relevance of adopting an Activity-Based Costing system is not determined by organisational size, but by the level of operational complexity and the need for more traceable, accurate, and disaggregated cost information. The coexistence of multiple products, differentiated production processes, an increasing proportion of indirect costs, and the need to analyse product profitability constitute a set of organisational conditions under which an ABC system becomes particularly appropriate.

From this perspective, the study contributes to the management accounting literature by providing applied evidence on the organisational conditions that favour the adoption of Activity-Based Costing systems in small manufacturing firms. Beyond the technical design of a cost model, the findings demonstrate how organisational development transforms information requirements and increases the importance of adopting more structured cost management systems capable of effectively supporting managerial decision-making.

Finally, the findings of this study open new opportunities for future research. The implementation and longitudinal evaluation of the proposed approach would allow researchers to assess its effects on the quality of management information, decision-making processes, and organisational performance. Likewise, applying this approach to other manufacturing microenterprises would contribute to evaluating the transferability of the findings and to further advancing knowledge on the adoption of Activity-Based Costing systems in similar organisational contexts

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AUTHOR CONTRIBUTIONS

The author was responsible for the conceptualization of the study, methodological design, data collection and analysis, development of the proposed costing system, preparation of the manuscript, and final revision.

CONFLICTS OF INTEREST

The author declares no conflict of interest related to this study.

USE OF ARTIFICIAL INTELLIGENCE (AI)

AI tools were used to support language editing, proofreading, and improvement of the writing. The author reviewed and validated the final content and remains fully responsible for the accuracy, interpretation, and final version of the manuscript.

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