

Presenting a Model of Corporate Factors Affecting the Implementation of Accounting Technologies in the Automobile Industry

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Abstract: Accounting technology, as one of the key pillars of financial management and organizational accounting, plays a fundamental role in improving the accuracy, efficiency, and transparency of financial processes. This transformation has enabled complex analyses and data-driven decision-making. This study aimed to present a model of corporate factors affecting the implementation of accounting technologies in the automotive industry using a qualitative grounded theory research method. Accordingly, through interviews with fourteen professors and financial managers holding a master's degree or higher in the automotive industry, 12 main categories were identified based on the paradigmatic model and structured into six dimensions: corporate factors and appropriate policymaking as “causal conditions”; sanctions and economic fluctuations as “intervening conditions”; supply chain complexity, rapid technological changes, and strict automotive industry standards as “contextual conditions”; integration of financial systems and improvement of financial reporting quality as the “interactional dimension”; accounting technologies as the “central phenomenon”; and competitiveness and increased shareholder trust as the “consequence dimension.” Overall, the extracted model indicates that the deployment of accounting technologies in the automotive industry requires the simultaneous alignment of corporate factors, effective policymaking, and management of external challenges such as sanctions and economic fluctuations. This model suggests that the phenomenon of “accounting technologies” emerges within a context shaped by supply chain complexity, rapid technological changes, and strict industry standards, and is activated through the integration of financial systems and the enhancement of reporting quality. The consequences extend from increased firm competitiveness to strengthened shareholder trust.

Keywords: Corporate factors, accounting technologies, automotive industry.

1. Introduction

Accounting technologies have become a critical component of contemporary organizational transformation, particularly in industries where financial processes are complex, operational cycles are extensive, and decision-making requires timely, accurate, and integrated information. In its traditional form, accounting was primarily associated with recording transactions, preparing periodic reports, ensuring compliance with financial regulations, and supporting managerial control through historical information. However, the increasing digitalization of business environments has expanded the function of accounting beyond documentation and reporting toward real-time analytics, predictive insight, automation, risk management, and strategic decision support. In this context, accounting technologies refer to the broad set of digital

tools, platforms, and systems that improve the collection, processing, analysis, verification, disclosure, and communication of financial and non-financial information. These technologies include enterprise resource planning systems, cloud-based accounting platforms, artificial intelligence applications, robotic process automation, blockchain-based reporting mechanisms, business intelligence tools, and integrated financial information systems. Their implementation can fundamentally reshape accounting processes by reducing manual intervention, improving reporting quality, accelerating financial analysis, and enabling more transparent and reliable organizational governance [1-3].

The increasing relevance of accounting technologies is closely connected with the broader transformation of business organizations in the digital era. Firms are no longer evaluated only on the basis of production capacity, market share, or financial performance, but also on their ability to use information technologies to enhance operational flexibility, transparency, accountability, and innovation. Digitalization and financial innovation can contribute to business growth by improving firm performance, strengthening competitiveness, and enabling organizations to respond more effectively to dynamic market conditions [4]. Accounting technologies are therefore not merely technical instruments used by accounting departments; rather, they are organizational capabilities that influence managerial decision-making, internal control, compliance, investor relations, and strategic planning. Their value is especially evident in contexts where organizations face high uncertainty, competitive pressure, and the need for timely financial intelligence. Accordingly, the successful implementation of accounting technologies depends not only on the availability of software or hardware, but also on corporate readiness, managerial commitment, employee capabilities, digital culture, regulatory alignment, and the broader institutional environment.

Recent developments in artificial intelligence and automation have further accelerated the transformation of accounting. Artificial intelligence enables accounting systems to process large volumes of structured and unstructured data, identify anomalies, support fraud detection, enhance audit procedures, and improve predictive financial analysis. Robotic process automation can also reduce repetitive accounting tasks, such as invoice processing, reconciliation, data entry, and compliance documentation, thereby allowing accounting professionals to focus on analytical and strategic functions [2]. Similarly, artificial intelligence applications in accounting and finance have expanded the scope of financial analysis, risk assessment, budgeting, forecasting, and performance evaluation [3]. These technological developments have created new opportunities for organizational efficiency, but they have also introduced new implementation challenges related to data quality, system integration, accountability, skills development, cybersecurity, and ethical governance. Therefore, accounting technology implementation should be understood as an organizational transformation process rather than a narrow technical upgrade.

Artificial intelligence has also changed the nature of accounting information and the mechanisms through which financial reports are produced and interpreted. The use of intelligent systems can improve the timeliness, comparability, and analytical depth of accounting information, but it may also create new concerns regarding earnings management, algorithmic opacity, and the reliability of automated judgments [5]. In this regard, the implementation of accounting technologies requires careful attention to the quality of information systems, the governance of automated processes, and the alignment of technological tools with accounting standards and ethical principles. In addition, artificial intelligence has been described as a central driver of accounting process development because it can support comprehensive progress in financial operations, internal control, decision-making, and organizational learning [6]. However, such progress is not automatic. Organizations must establish

appropriate infrastructures, train specialized personnel, adapt internal processes, and develop managerial policies that ensure that technology supports accounting reliability rather than simply accelerating existing weaknesses.

One of the most important dimensions of accounting technology adoption concerns auditing and regulatory compliance. As financial systems become more digital, audit processes increasingly rely on continuous monitoring, data analytics, artificial intelligence, and automated control testing. These tools can increase audit coverage, improve the detection of irregularities, and support compliance with complex regulatory requirements. At the same time, they raise questions about accountability, professional judgment, algorithmic transparency, and the responsibility of managers and auditors in technology-mediated environments [7]. This issue is especially significant in industries with strict standards, extensive regulatory oversight, and high stakeholder expectations. Accounting technologies must therefore be implemented in a manner that balances innovation with accountability. The adoption of advanced technologies should improve compliance and transparency, but it should also preserve the interpretive, ethical, and professional dimensions of accounting practice. For this reason, regulatory requirements, accounting standards, auditing standards, and corporate governance mechanisms are among the major contextual factors influencing the implementation of accounting technologies.

Internet-based technologies have also transformed accounting processes and management control systems by enabling real-time data exchange, remote access to financial information, integrated reporting, and dynamic performance monitoring [8]. These technologies are particularly important for organizations that operate across multiple units, suppliers, production lines, and markets. In such organizations, accounting data are not isolated within the accounting department but are generated across purchasing, production, logistics, sales, inventory, taxation, and customer relationship systems. Therefore, the effectiveness of accounting technologies depends on the degree of integration among organizational systems. If accounting systems are not connected with production, supply chain, tax, customs, inventory, and managerial control systems, digital tools may only reproduce fragmented information in a faster format. Conversely, integrated financial systems can enhance coordination, reduce errors, improve cost management, strengthen internal controls, and provide managers with a comprehensive view of organizational performance.

The organizational adoption of new accounting technologies is strongly shaped by enabling and constraining factors. Research on technology adoption in accounting has shown that implementation is affected by enablers, barriers, and strategies that operate at different levels, including individual, organizational, technological, and environmental levels [9]. Enablers may include senior management support, perceived usefulness, employee readiness, adequate infrastructure, training, strategic alignment, and organizational learning. Barriers may include resistance to change, lack of specialized skills, insufficient investment, uncertainty about benefits, weak data governance, and incompatibility with existing systems. These factors indicate that accounting technology implementation is not a purely technical decision; it is a strategic organizational process that requires leadership, planning, investment, and cultural adaptation. Without corporate readiness, even advanced technological tools may remain underutilized or fail to generate meaningful improvements in reporting quality and decision-making.

Firm-level determinants are particularly important in explaining why some organizations adopt accounting technologies successfully while others experience implementation delays or limited outcomes. Corporate characteristics such as managerial support, organizational size, financial capacity, technological infrastructure, employee expertise, perceived competitive pressure, and organizational culture can influence the willingness and ability of firms to implement accounting technologies [10]. Among these factors, senior management support is often essential because managers allocate resources, communicate strategic priorities, reduce resistance, and

institutionalize new practices. Investment in technology is also critical because accounting systems require not only initial acquisition costs but also maintenance, updating, cybersecurity measures, user training, and process redesign. Specialized human resources are another decisive factor, as employees must have the technical and analytical competencies required to use accounting technologies effectively. Therefore, corporate factors constitute a central foundation for the implementation of accounting technologies.

Accounting change is also embedded in broader cultural and institutional fields. Accounting practices do not change only because organizations introduce new technologies; rather, they change through institutionalization, professional norms, managerial expectations, regulatory pressures, and cultural interpretations of what counts as reliable and legitimate accounting information [11]. This perspective is important because it highlights that technology adoption must be examined within the institutional and organizational context in which accounting practices operate. Digital accounting systems may be technically available, but their effectiveness depends on how users interpret them, how managers legitimate them, how regulations support them, and how organizational routines are reconstructed around them. Thus, cultural and institutional dimensions are especially relevant in examining corporate factors affecting the implementation of accounting technologies. Digital culture, acceptance of change, trust in technology, and organizational learning are not secondary issues; they directly affect the extent to which accounting technologies become embedded in daily financial practices.

Blockchain technology has also emerged as an important innovation in financial reporting because it can enhance traceability, immutability, verification, and transparency of financial records. From the perspective of financial managers, blockchain-based reporting can influence the quality, reliability, and credibility of financial information by reducing manipulation risks and improving the auditability of transactions [12]. Although blockchain implementation remains challenging due to technical, legal, and organizational constraints, its relevance demonstrates the wider movement toward technology-enabled financial transparency. In industries with complex transactions and multiple stakeholders, technologies such as blockchain may support more reliable reporting and stronger stakeholder confidence. However, these benefits depend on system integration, regulatory acceptance, managerial readiness, and the compatibility of blockchain solutions with existing financial processes. Therefore, blockchain is one example of how accounting technologies can improve reporting quality while simultaneously requiring substantial corporate and institutional preparation.

The relationship between financial technology and established organizational systems is also important in understanding accounting technology implementation. Studies on collaboration between banks and fintechs show that technological transformation often requires cooperation between traditional institutions and innovative technological actors, as well as attention to regulatory, organizational, strategic, and infrastructural factors [13]. This insight is relevant to accounting technologies because firms frequently depend on external vendors, fintech providers, software developers, consultants, cloud service providers, and digital infrastructure partners. The implementation of accounting technologies is therefore not confined within the boundaries of the firm. It may require collaboration with technology companies, auditors, regulators, financial institutions, and platform providers. In this sense, corporate factors interact with external networks and technological ecosystems, making technology adoption a multi-actor process.

The automotive industry provides a particularly important context for examining accounting technology implementation because it is characterized by complex production systems, extensive supply chains, high capital intensity, strict quality and safety standards, technological disruption, and intense competitive pressure. Automotive firms must manage large volumes of financial and operational data related to procurement, production

costs, logistics, inventory, warranty obligations, taxation, customs, pricing, research and development, and customer demand. The emergence of connected cars, electric vehicles, autonomous technologies, and data-based business models has further increased the strategic importance of information management in the automotive sector. Connected car business models show that vehicle-generated data can create new forms of value, but this value depends on the ability of firms to organize, process, govern, and commercialize data effectively [14]. As automotive firms become more data-driven, accounting systems must also evolve to capture new cost structures, revenue models, performance indicators, and risk categories.

In addition, the automotive industry faces rapid technological changes that directly influence accounting and financial management. The transition toward electric vehicles, digital platforms, intelligent manufacturing, connected services, and artificial intelligence-based operations changes investment patterns, cost structures, asset valuation, supply chain relationships, and reporting requirements. Accounting technologies can help firms manage these changes by improving cost analysis, integrating financial and operational data, supporting scenario planning, and enhancing the accuracy of financial reporting. However, the same technological dynamism also increases implementation complexity. Firms must continuously update systems, train employees, protect data, and ensure that financial reporting remains aligned with changing business models. Consequently, the automotive industry is an appropriate setting for studying the corporate factors that influence accounting technology implementation, because the need for digital accounting transformation is high while the operational and environmental barriers are also substantial.

Another important issue is that the implementation of accounting technologies in the automotive industry must be examined in relation to contextual and intervening conditions. Supply chain complexity, strict industry standards, rapid technological change, sanctions, economic fluctuations, inflation, currency instability, and limitations in international transactions can all affect the feasibility and effectiveness of technological implementation. These conditions can influence access to software, hardware, foreign investment, technical support, training resources, and international financial systems. They can also increase the need for more accurate financial reporting, stronger internal controls, and better cost management. Therefore, a comprehensive model of accounting technology implementation should not focus only on internal corporate factors; it should also consider the external conditions that shape organizational decisions and constrain or facilitate implementation.

Despite the growing literature on artificial intelligence, automation, blockchain, financial technology, and accounting information systems, there remains a need for context-specific models that explain how corporate factors affect the implementation of accounting technologies in complex industrial sectors. Much of the existing research has examined accounting technologies from general organizational, technical, or professional perspectives, while fewer studies have developed an integrated model for the automotive industry that combines corporate factors, policymaking, contextual conditions, intervening conditions, interactional processes, and consequences. Such a model is important because implementation success depends on the interaction between organizational readiness and environmental complexity. In particular, identifying the role of software and hardware infrastructure, senior management support, investment in technology, specialized human resources, digital culture, and appropriate policymaking can provide practical guidance for automotive firms seeking to improve financial systems and reporting quality.

Accordingly, the aim of the present study is to present a model of corporate factors affecting the implementation of accounting technologies in the automotive industry.

2. Methodology

The present study is a qualitative and fundamental research. In terms of its qualitative dimension, the research strategy is grounded theory. From a paradigmatic perspective, the qualitative dimension of this study is based on constructivism (interpretivism). Moreover, in terms of identifying the effective characteristics, the present study is exploratory. Regarding the type of data, this study is qualitative. The statistical population of the study in the qualitative section consisted of professors and financial managers with more than 10 years of work experience and a master's degree or higher in the automotive industry, considering the specialized nature of the subject. In studies conducted using qualitative methods and interviews, a sample size between 5 and 25 participants is usually recommended. In addition, non-probability purposive sampling and theoretical sampling were used in the qualitative section. The interview process in the qualitative analysis continued until theoretical saturation was achieved. Accordingly, 14 individuals participated in the qualitative section. Interviews were used to collect the research data. Since semi-structured interviews are more appropriate for qualitative studies conducted with exploratory purposes and aimed at presenting a model, semi-structured interviews were also conducted with experts in this study. In the qualitative section, the grounded theory method was used, and MAXQDA software was employed for data analysis.

3. Findings and Results

This study was conducted based on the views of 14 experts in the field under investigation. In terms of gender, 9 participants were male and 5 were female. In terms of age, 1 participant was under 40 years old, 6 participants were between 41 and 45 years old, and 7 participants were over 45 years old. In terms of education, 4 experts held a master's degree and 10 held a doctoral degree. Finally, 3 participants had between 10 and 20 years of work experience, and 11 participants had more than 20 years of work experience.

Table 1. Demographic Characteristics of the Experts

Demographic characteristics	Category	Frequency	Percentage
Gender	Male	9	64.3%
Gender	Female	5	35.7%
Age	Under 40 years	1	7%
Age	41 to 45 years	6	43%
Age	45 years and above	7	50%
Education	Master's degree	4	29%
Education	Doctoral degree	10	71%
Work experience	10 to 20 years	3	21.5%
Work experience	More than 20 years	11	78.5%
Total	—	14	100%

To present the model of corporate factors affecting the implementation of accounting technologies in the automotive industry, specialized semi-structured interviews were conducted with experts. The purpose of these interviews was to collect expert views on the effective factors and consequences of the model. At this stage, before the interviews began, nine open-ended questions were developed, and during the interview process, it was anticipated that new questions might also be raised. To enable the researcher to become familiar with the depth and breadth of the content of the data, the data were reread repeatedly and read actively, that is, by searching for meanings and patterns.

The results of the interviews were analyzed using the grounded theory method. For this purpose, the interview transcripts were read and reviewed several times. To conduct the grounded theory research, the “systematic approach,” known through the work of Strauss and Corbin (1998), was used.

After conducting interviews through theoretical sampling and after the initial coding of the interview transcripts, concepts and categories were extracted. Through initial coding in the open coding stage, a total of 937 codes were identified. After screening the initial codes, 150 concepts were obtained. In qualitative research, the criterion for stopping the interview and analysis process is achieving “theoretical adequacy” or saturation. In other words, prolonging the research process does not lead to changes in the concepts or categories that have emerged during the study. From the end of the thirteenth interview to the end of the fourteenth interview, no changes occurred in the concepts and categories formed during the study, including their creation or modification, which indicates the fulfillment of the criterion of “theoretical adequacy.” The open codes were grouped together, and then focused codes were developed. The concepts were classified into 16 categories through focused coding. In addition, the categories of software and hardware infrastructure, senior management support, investment in technology, specialized human resources, and digital culture were placed under the category of corporate factors. Therefore, in the final analysis, 12 main categories were identified.

The concepts, dimensions, and main categories of the model extracted from the interviews using the grounded theory method are presented in Table 2.

Table 2. Concepts and Main Categories of the Model of Corporate Factors Affecting the Implementation of Accounting Technologies in the Automotive Industry

Concept	Category	Main category / dimension
Appropriate strategy for upgrading financial technology; analysis of the internal and external environment; strategy development; strategic planning; changes in laws; legal pressure for financial transparency; supervisory systems; deterrent regulations; pricing by the Competition Council; e-government; national management policies; formulation of a macro strategy; formulation of a technology strategy; legal requirements for financial transparency; complex financial and tax regulations; government support; requirements of accounting and auditing standards and regulations; obligation to comply with IFRS	Appropriate policymaking	—
Providing an appropriate database; information technology infrastructure; use of technology; IT infrastructure; technological infrastructure; updated systems; selection of appropriate software; use of modern technology; electronicization of systems; data-driven orientation; updating the accounting system; providing a cloud computing system	Software and hardware infrastructure	Corporate factors
Role of managers; managers’ positive attitude toward technology; managers’ support and commitment; intelligent change management; managerial support; awareness and supervision of senior managers; allocation of organizational resources for digital transformation; managers serving as role models in the use of financial technology; incentive policies for employees in adopting technology; establishment of a digital transformation committee in the organization	Senior management support	Corporate factors
Sufficient financial resources; investment in R&D; appropriate facilities; level of investment in IT; allocation of a sustainable technology budget; attraction of foreign investment for IT; establishment of an internal innovation fund; financial risk management of technology projects	Investment in technology	Corporate factors
Employee training; skilled human resources; professional digital skills; upgrading employees’ level of training; shortage of specialized human resources	Specialized human resources	Corporate factors
Appropriate culture-building; increasing employee awareness; persuading employees; justifying personnel; organizational culture for change; technology acceptance; resistance to change	Digital culture	Corporate factors
Optimized systems for managerial decisions; appropriate information; access to information; establishment of an appropriate information system; reduction of accounting operation costs; implementation of accounting technology; deployment of advanced accounting systems; establishment of strategic digital systems; use of business intelligence; automation of financial processes; financial flexibility; optimal cost management; reduction of financial and accounting	Accounting technologies	—

complexity; strong and reliable accounting system; development of financial technology (FinTech); necessity of digitalizing processes; transformation in accounting systems		
High operational complexity of production; extensive supply chain; multi-layered supply chain; high logistics costs; multiplicity of parts suppliers; coordination problems across the supply chain	Supply chain complexity	—
Electric vehicles; autonomous vehicles; dependence on advanced technology; importance of research and development; rapid changes in technology and artificial intelligence; increased cooperation with technology companies; rapid technological and digital advancement; automotive technology start-ups	Rapid technological changes	—
Environmental standards; carbon production standards; compliance with international standards; strict environmental regulations; environmental penalties; customs regulations; environmental taxes; vehicle safety standards; fuel consumption standards; requirements for producing hybrid and electric vehicles; international quality standards; export restrictions based on compliance with global automotive standards	Strict automotive industry standards	—
Political conditions; relations with other companies; pervasive restrictions; financial restrictions; comprehensive sanctions; inability to transfer funds; international banking restrictions; import restrictions; inability to interact with multinational companies; inability to participate internationally; geopolitical risk	Sanctions	—
Inflation; depreciation of the national currency; inflationary economy; increase in costs; industry sensitivity to economic fluctuations; severe economic and currency fluctuations; economic crisis; fluctuations in raw material prices	Economic fluctuations	—
Integrated financial systems; information security; process automation; coordination with the production system; integration of the accounting system with other organizational units; integration of the accounting network with the supply chain system; improvement of financial and accounting processes; reduction of cyberattacks; connection to the tax and customs systems	Integration of financial systems	—
Increased financial transparency; appropriate data analysis; timeliness of data; improvement of the accuracy and validity of financial information; reduction of computational errors; improvement of disclosure quality	Improvement of financial reporting quality	—
Globalization of competition; cost reduction for competitiveness; increased customer satisfaction; increased productivity; enhancement of firms' competitive capability; customer relationship management; changes in customer behavior; online purchasing	Competitiveness	—
Investment trust; shareholder expectations; investor support; transparency of financial reports for investors; reduction of investment risk	Increased shareholder trust	—

Then, the axial codes, which included the main classifications of the extracted concepts, were organized together, and their relationships with one another were determined using interpretive structural modeling. At this stage, an attempt was made to identify the relationships among these concepts and the way they influenced one another. For this purpose, the interpretive structural modeling (ISM) method was employed to develop the final structural self-interaction matrix. This matrix was derived from expert opinions and the analysis of relationships among the research categories, designed based on the axial process.

In grouping the categories, a formulation concerning the contexts, processes, consequences, and relationships among the research categories is consolidated. In this study, the contexts, processes, and consequences were identified as follows: the contexts included the categories of appropriate policymaking, corporate factors, supply chain complexity, rapid technological changes, strict automotive industry standards, sanctions, and economic fluctuations.

Furthermore, the processes were identified as the categories of integration of financial systems and improvement of financial reporting quality.

The consequences of the proposed model were identified as competitiveness and increased shareholder trust.

After examining the categories from different aspects and determining the relationships among the categories at different levels and through conditional path analysis, the axial coding stage was completed so that, in the final step of the analysis, selective coding and the development of the theory and final model could be carried out. In selective coding, accounting technologies were identified as the core category of the research.

The paradigm model derived from the qualitative findings of the study is also presented below:

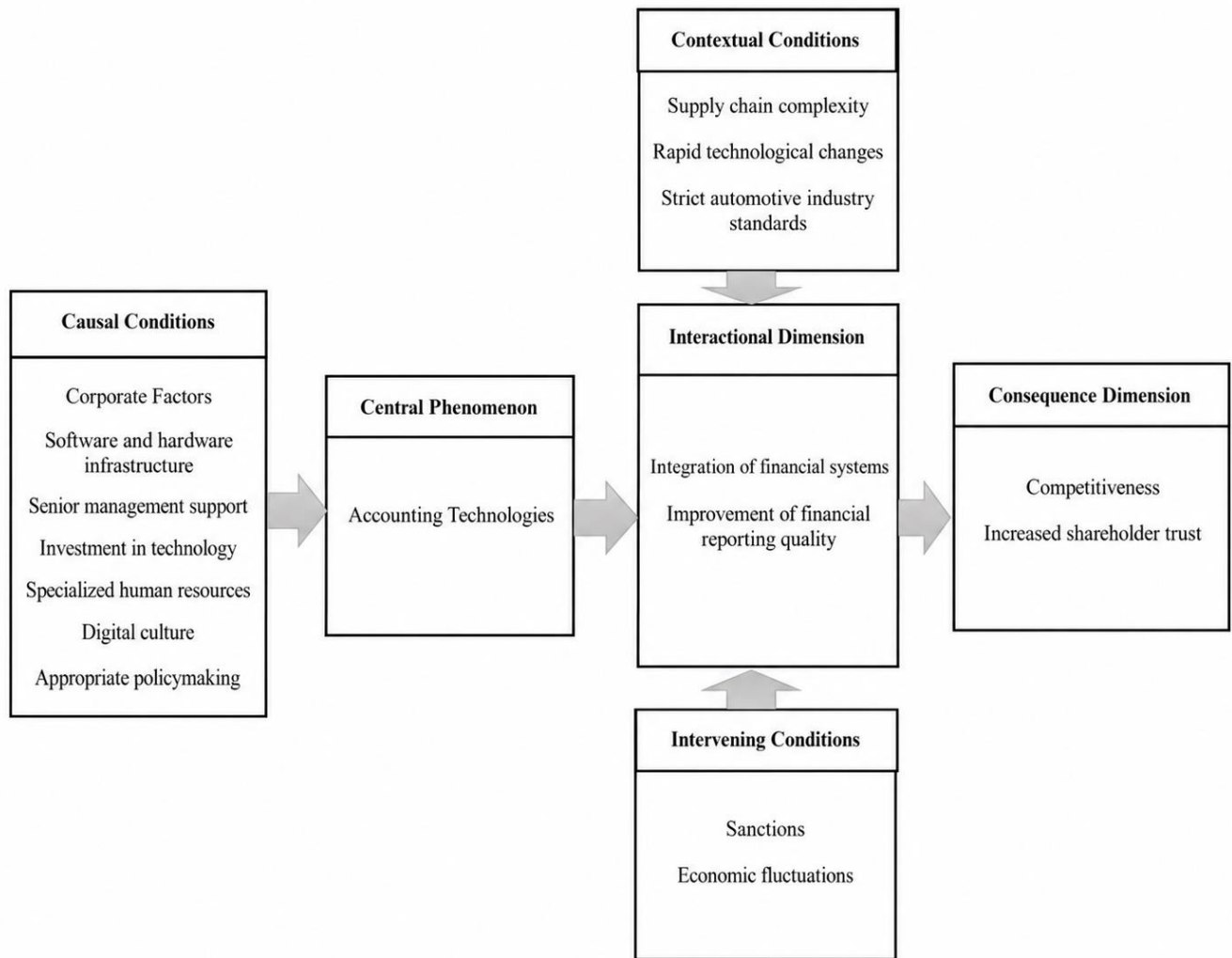


Figure 1. Paradigm Model

4. Discussion and Conclusion

The findings of this study led to the identification of a paradigmatic model for the corporate factors affecting the implementation of accounting technologies in the automotive industry. Based on the qualitative analysis of expert interviews, accounting technologies were identified as the core category of the model. The causal conditions included corporate factors and appropriate policymaking; the contextual conditions included supply chain complexity, rapid technological changes, and strict automotive industry standards; the intervening conditions included sanctions and economic fluctuations; the interactional dimension included the integration of financial systems and improvement of financial reporting quality; and the consequences included competitiveness and increased shareholder trust. This structure indicates that the implementation of accounting technologies in the automotive industry is not a merely technical issue limited to the acquisition of software or digital tools, but rather a multidimensional organizational, technological, strategic, and environmental phenomenon. In other words, accounting technologies become effective when corporate readiness, managerial commitment, technological infrastructure, specialized human resources, digital culture, regulatory support, and environmental adaptation are

aligned with one another. This finding is consistent with studies that emphasize the role of firm-level determinants in the successful implementation of accounting technologies, particularly technological readiness, organizational support, financial capability, and managerial orientation toward digital transformation [9, 10].

One of the most important findings of this study was the placement of corporate factors among the causal conditions of the model. In the final model, corporate factors included software and hardware infrastructure, senior management support, investment in technology, specialized human resources, and digital culture. This result shows that organizations cannot implement accounting technologies effectively without adequate internal capacity. Software and hardware infrastructure provide the operational basis for digital accounting systems, while senior management support ensures the strategic legitimacy and resource allocation required for technological change. Investment in technology enables the acquisition, updating, maintenance, and security of accounting systems. Specialized human resources make it possible to use these systems analytically and professionally, and digital culture reduces resistance to change and facilitates technology acceptance. This finding aligns with research showing that the adoption of new accounting technologies is influenced by organizational enablers and barriers, including leadership support, employee capabilities, organizational readiness, and the strategic management of change [9]. It is also consistent with the view that accounting technology implementation depends on firm-level determinants and cannot be explained only by technical features of accounting software [10].

The role of senior management support in the model is particularly important. The findings indicate that managers' positive attitudes toward technology, their commitment to digital transformation, their supervision of implementation processes, and their ability to allocate organizational resources are key factors in the successful deployment of accounting technologies. This result can be explained by the fact that accounting technologies often require changes in organizational routines, financial processes, reporting procedures, and employee responsibilities. Without managerial support, employees may perceive these technologies as imposed tools rather than strategic instruments for improving organizational performance. Previous studies have also emphasized that the implementation of accounting and financial technologies requires strategic direction, leadership commitment, and organizational coordination [6, 9]. In this regard, managers function not only as decision-makers but also as institutional agents who legitimize digital accounting practices and embed them into organizational culture.

Another important result was the identification of appropriate policymaking as a causal condition. This category included strategic planning, development of financial technology strategies, legal pressure for transparency, regulatory systems, government support, tax and financial regulations, accounting and auditing standards, and compliance with IFRS. This finding suggests that the implementation of accounting technologies is shaped not only by internal organizational decisions but also by the regulatory and policy environment. In highly regulated industries such as automotive manufacturing, accounting systems must comply with financial, tax, audit, environmental, and industrial standards. Therefore, appropriate policymaking can create the institutional foundation for technology adoption by encouraging transparency, requiring reliable reporting, supporting digital transformation, and reducing ambiguity in implementation. This result is compatible with studies that show artificial intelligence-enhanced auditing and regulatory compliance must balance innovation with accountability, particularly when digital tools are used in financial reporting and control systems [7]. It also corresponds with the literature indicating that accounting change is embedded in institutional fields and is influenced by professional norms, regulatory expectations, and organizational legitimacy [11].

The identification of accounting technologies as the central phenomenon of the model reflects the centrality of digital transformation in modern financial management. The extracted concepts in this category included advanced

accounting systems, business intelligence, automation of financial processes, cost management, reliable accounting systems, FinTech development, digitalization of processes, and transformation in accounting systems. This finding indicates that accounting technologies are not limited to mechanizing traditional accounting procedures; rather, they transform the informational, analytical, and control functions of accounting. This interpretation is consistent with studies that regard artificial intelligence, automation, and robotic process automation as key drivers of accounting transformation, capable of improving efficiency, reducing repetitive tasks, enhancing analytical capacity, and supporting more advanced auditing and accounting processes [1, 2]. Similarly, artificial intelligence applications in accounting and finance have been shown to improve forecasting, decision support, risk analysis, and financial processing [3]. Therefore, the present findings reinforce the idea that accounting technologies constitute a core organizational capability rather than a peripheral technical tool.

The contextual conditions identified in this study included supply chain complexity, rapid technological changes, and strict automotive industry standards. This finding is highly meaningful in the automotive industry because this sector is characterized by multi-layered supply chains, numerous suppliers, high logistics costs, complex production processes, strict quality standards, and rapid technological disruption. The complexity of the supply chain increases the need for integrated and accurate accounting systems because financial information must be coordinated across procurement, production, logistics, inventory, sales, customs, taxation, and supplier relations. Internet-based technologies can improve accounting processes and management control systems by supporting real-time information exchange, system integration, and more dynamic performance monitoring [8]. Therefore, in the automotive industry, accounting technologies are essential for reducing informational fragmentation and improving the quality of managerial decision-making.

Rapid technological change was another contextual factor extracted from the interviews. This category included electric vehicles, autonomous vehicles, advanced technology dependence, research and development, artificial intelligence, digital progress, and cooperation with technology companies. These findings indicate that the automotive industry is moving toward data-intensive and technology-driven business models. As vehicles become more connected, intelligent, and digitally integrated, firms must manage new types of data, costs, risks, and revenue streams. Research on connected car business models also shows that car data can generate new forms of value and lead to new business model archetypes, but this requires the ability to organize and use data effectively [14]. In this context, accounting technologies can help automotive firms capture, process, analyze, and report financial implications of technological innovation. The findings also align with studies showing that digitalization and financial innovation promote business growth and firm performance, particularly when they interact with technological innovation and product market competition [4].

The model also identified sanctions and economic fluctuations as intervening conditions. These factors can intensify or weaken the implementation process by influencing access to technology, international financial systems, software providers, foreign investment, banking relations, imports, and collaboration with multinational companies. Economic fluctuations, inflation, exchange-rate instability, and increases in raw material prices can also affect investment capacity and create uncertainty in technology-related decision-making. Although these factors may constrain implementation, they may simultaneously increase the need for accounting technologies because firms operating under uncertainty require more accurate cost management, faster financial analysis, stronger control systems, and more transparent reporting. Therefore, the findings suggest a dual role for intervening conditions: they can create barriers to digital accounting implementation, but they can also increase the strategic

necessity of such implementation. This interpretation is compatible with the broader literature showing that technology adoption is shaped by both organizational drivers and contextual barriers [9].

The interactional dimension of the model consisted of integration of financial systems and improvement of financial reporting quality. This is one of the most important theoretical contributions of the study because it explains the mechanism through which accounting technologies produce organizational outcomes. The findings show that accounting technologies affect firms when they are translated into integrated financial systems, secure information flows, automated processes, coordination with production systems, connection with supply chain systems, and improved financial and accounting processes. This result supports the argument that digital technologies create value in accounting when they are embedded in organizational systems rather than used as isolated tools. Previous research has similarly shown that internet-based technologies transform accounting processes and management control systems through integration, connectivity, and real-time information processing [8]. The improvement of financial reporting quality, including transparency, timeliness, accuracy, validity, reduction of computational errors, and enhanced disclosure quality, is also consistent with the literature on blockchain and financial reporting, which emphasizes the potential of digital technologies to improve reliability, traceability, and transparency in financial information [12].

The finding that accounting technologies improve financial reporting quality is also supported by research on artificial intelligence and accounting information. Artificial intelligence can improve accounting information by enhancing analytical capacity, reducing errors, detecting irregularities, and supporting more reliable decision-making; however, it also requires careful governance to prevent opacity and inappropriate earnings management [5]. This means that improvement in reporting quality depends not only on adopting technologies but also on using them within controlled, transparent, and accountable systems. The present study confirms this point by showing that financial system integration and reporting quality are interactional processes linking the central phenomenon to organizational consequences. In other words, accounting technologies do not automatically lead to competitiveness or shareholder trust; they must first improve the internal architecture of financial information and reporting.

The consequences of the proposed model were competitiveness and increased shareholder trust. Competitiveness was reflected in concepts such as cost reduction, productivity improvement, customer satisfaction, competitive capability, customer relationship management, and adaptation to changes in customer behavior. This finding indicates that accounting technologies can strengthen competitive advantage by improving cost control, operational transparency, managerial decision-making, and responsiveness to market changes. This result is aligned with evidence that financial innovation and digitalization contribute to business growth and firm performance, especially when firms operate in competitive markets and use green and digital innovation strategically [4]. In the automotive industry, where cost structures are complex and competition is intense, accounting technologies can support competitiveness by enabling more precise pricing, better cost allocation, improved budgeting, and more effective monitoring of operational performance.

Increased shareholder trust was the second consequence identified in the model. The concepts related to this category included investment trust, shareholder expectations, investor support, financial report transparency for investors, and reduced investment risk. This finding indicates that accounting technologies can strengthen investor confidence when they improve transparency, accuracy, timeliness, and reliability of financial reporting. The relationship between technology-enabled reporting and stakeholder trust is consistent with studies emphasizing the importance of digital accounting systems, audit technologies, blockchain, and artificial intelligence in enhancing

accountability and information quality [7, 12]. It is also compatible with research on collaboration between traditional financial institutions and FinTech actors, which shows that technological innovation can support trust, efficiency, and institutional adaptation when implemented through appropriate organizational and regulatory mechanisms [13]. Thus, the findings suggest that shareholder trust is not merely a reputational outcome but a direct consequence of improved financial information quality and stronger technological governance.

Overall, the findings of this study extend previous research by presenting an integrated model that connects corporate factors, policymaking, contextual conditions, intervening conditions, interactional processes, and organizational consequences. While previous studies have examined accounting technologies, artificial intelligence, automation, blockchain, FinTech, and digital reporting separately, the present study integrates these elements within the specific context of the automotive industry. The model shows that implementation success depends on the simultaneous presence of internal readiness, policy support, contextual awareness, and process integration. It also indicates that accounting technologies generate value through the integration of financial systems and improvement of reporting quality, ultimately leading to competitiveness and increased shareholder trust. Therefore, the study contributes to the literature by explaining not only what factors affect implementation, but also how these factors interact in a paradigmatic structure.

The main limitation of this study is that it was conducted using a qualitative grounded theory approach based on interviews with 14 experts in the automotive industry. Although the sample size was appropriate for qualitative research and theoretical saturation was achieved, the findings reflect the views and experiences of a specific group of experts. Therefore, the results should be interpreted in relation to the industrial, organizational, and environmental context of the study. Another limitation is that the model was developed based on expert perceptions rather than longitudinal observation of actual technology implementation projects. As a result, while the model provides a strong conceptual explanation, it does not directly measure the causal strength of each factor or the relative importance of the identified categories.

Future research is suggested to test the proposed model quantitatively using structural equation modeling or other multivariate techniques in a larger sample of automotive firms. Future studies may also compare the model across different industries to determine whether the identified corporate factors and contextual conditions are specific to the automotive sector or applicable to other complex manufacturing industries. Longitudinal research can also examine how accounting technology implementation evolves over time and how firms move from initial adoption to institutionalization and performance improvement. In addition, future studies may investigate the separate effects of artificial intelligence, blockchain, cloud accounting, business intelligence, and robotic process automation on financial reporting quality, cost management, and stakeholder trust.

From a practical perspective, automotive firms should approach the implementation of accounting technologies as a strategic organizational transformation rather than a technical procurement decision. Managers should first assess corporate readiness, including technological infrastructure, financial resources, employee skills, data quality, cybersecurity capacity, and organizational culture. Senior managers should actively support digital transformation, allocate stable budgets, create cross-functional implementation teams, and provide continuous training for accounting and financial personnel. Firms should also prioritize the integration of accounting systems with production, supply chain, tax, customs, inventory, and managerial control systems. Finally, policymakers and industry regulators should support the implementation of accounting technologies by clarifying standards, reducing regulatory ambiguity, encouraging transparency, and creating conditions that facilitate secure and reliable digital financial reporting.

Authors' Contributions

Authors equally contributed to this article.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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