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The Digital Transformation Process Through the Perspective of the Elements of Business Model Innovation

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Abstract
This study analyzes the digital transformation process in Rio Grande do Sul footwear companies. This involves characterizing organizations' digital transformation practices and identifying the challenges faced throughout this transformation journey. Data was collected through interviews with four managers from different footwear companies using a semi-structured interview guide. The key findings highlight that leadership engagement and the integration of digital transformation into the company's culture are crucial for the success of this process. Additionally, team engagement and resource constraints were identified as significant challenges footwear companies face during digital transformation. Digital tools such as Business Intelligence and big data are used to support decision-making, and they adopt cloud computing to enhance work flexibility. However, it was observed that more advanced technologies, such as the Internet of Things and artificial intelligence, are still in the early stages of study and application. Footwear companies in Rio Grande do Sul are undergoing a continuous process of investment in digital transformation, aiming to enhance their competitive position and meet the evolving market demands.

Keywords*: Digital transformation. Digitalization. Business model innovation. Innovation. Footwear sector.*

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I. Introduction

In recent years, digital transformation (DT) has been driven by the growth of digital technologies such as blockchain, the Internet, and robotics, which have taken organizations to a new level of digital competition (Verhoef *et al*., 2021). DT enabled everything from gains in operational efficiencies to the use and provision of services based on data from digital platforms (Carvalho *et al.,* 2021). It can be defined by changes in how companies use digital technologies to transform their business models to increase the value offered (Verhoef *et al.,* 2021). At the same time, difficulties in keeping up with the demands of DT can lead to the operational inability of some businesses and even their bankruptcy (Kotarba, 2018). In this sense, the DT – digitization, digitalization, and digital transformation – demands significant structural changes from organizations in managing information systems, marketing, strategy, innovation, and operations (Verhoef *et al.*, 2021). As a consequence, it requires organizations to innovate their business models.

Business Models (BM) comprehend how a company creates and delivers value to its customers while converting the operation into payments and profit (Teece, 2010). A BM represents the architecture of the flows of products, services, and information, describing different organizations, their responsibilities, and sources of income (Timmers, 1998). Internally, a BM is motivated by the company's social capital, which helps it achieve goals, including apparent and potential resources and capabilities. Externally, it is driven by market demand, technological advancement, and the economic environment (Zhang *et al.,* 2016). Business Model Innovation (BMI) represents a reconfiguration of the way companies conduct their business (Zoot & Amit, 2017), being a complex process of reengineering and resource optimization (Zhang *et al.,* 2016). One way to understand BM is by investigating its elements – content, structure, and governance – as proposed by Zott and Amit (2017, 1010, 2008).

Innovation resources are essential for a company's survival in international markets (Sui & Baum, 2014), as global competition has strengthened corporate governance and boosted specific activities promoting innovation (Chang *et al.,* 2019). Innovation and internationalization are directly related (Doloreux & Laperrière, 2014) and should be seen as driving forces contributing to organizational growth (Prashantham, 2008). Innovation positively impacts companies through increased productivity and export orientation (Cassiman & Golovko, 2011), while internationalization leads to more innovative activities (Chang *et al.,* 2019). The Business Model Innovation (BMI) topic has received more academic attention in recent years (Abrahamsson *et*

al., 2019), and several researchers highlighted the link between BMI and internationalization (Zoot *et al.,* 2011; Spieth & Schneider, 2016; Cavallo *et al.,* 2019; Nunes & Steinbruch, 2019; Jean & Tan, 2019; Cao *et al.,* 2018).

The DT and the consequent innovations in BM have intensely changed consumer expectations and their behavior, increasing the pressure for competitiveness in traditional companies and creating disruptive processes in many markets (Verhoef *et al.,* 2021), which is expanded in organizations that operate in international markets. The interaction between customers and organizations within an increasingly digitized context opens up new possibilities. However, to obtain positive results from these opportunities, it is necessary to know and understand these new solutions (Kotarba, 2018) and discover how they support new BMs (Carvalho *et al.,* 2021).

One of the sectors where companies face international pressure is the footwear sector. According to a sectoral report by Abicalçados (2022), Brazil is the fifth largest footwear producer in the world. Rio Grande do Sul State is the second in the production of pairs in the national territory. In this context, the report points out the concentration of footwear production in Vale do Sinos (46.9%), Vale do Paranhana and Encosta da Serra (21.3%), Serra/Hortências (2.6%), and the rest scattered in other regions (29.1%). According to Pozzebon (2023), the state is the largest employer in the footwear sector in Brazil, accounting for 34.1% of jobs generated by the activity in the country. The state is also a leader in the share of exported footwear, representing 44% of the total pairs shipped outside the country (Abicalçados, 2022).

In Rio Grande do Sul, Footwear production primarily aims at products destined for the female public. It concentrates on large companies that make up one of the most significant footwear clusters in the world (Abicalçados, 2022). The footwear sector is characterized as a traditional sector that is still often seen from the outside as not very innovative. However, intense competition, both nationally and internationally, and the challenges of recent years have brought to light the need for innovation through digital technologies. Thus, given the above, this research aims to analyze How DT occurs in internationalized companies in the footwear sector from the perspective of the elements of innovation in a BM?

Considering that this subject still needs to be explored in the Brazilian context and that the pressures in the sector originate nationally and internationally, exploratory research was conducted to investigate four Brazilian exporting organizations.

II. Innovation and Business Model Innovation

As one of the main drivers of productivity growth (Baily & Chakrabarti, 2011), innovation creates value and rewards human, physical, and intellectual capital. This value creation increases aggregate incomes and positively impacts overall living standards. In a world with accelerated and increasingly globalized technological development, opportunities are daily, making the market increasingly competitive (McMullen & Shepherd, 2006). Innovation involves organizational learning based on personal, technical, and cultural factors imbued with uncertainty and inherent potential for change and problem-solving during implementation (Tidd & Bessant, 2015). With an increasingly intense competitive environment and a constantly changing market, being innovative becomes increasingly critical for organizations' economic and social development.

A BM can be defined as how companies create and deliver value to their customers, converting them into payments and profits (Teece, 2010), thus meeting the needs and expectations of their stakeholders (Nunes & Pereira, 2021). BM refers to how product, service, or information flows, detailing the organization's participants and their roles, potential benefits, and revenue sources (Timmers, 1998). A creative and/or innovative BM can determine the organization's competitiveness within the market (Zott & Amit, 2008).

Innovation in a BM corresponds to new ways of generating and obtaining value for the company and its stakeholders, creating recipes, and defining value propositions for customers, suppliers, and partners (Casadeus-Masanell & Ricart, 2010). BMI is one of the most prominent challenges organizations face today (Nunes & Russo, 2019), and companies need to succeed and remain active in a complex and dynamic environment (Giesen *et al.,* 2010).

Teece (2010) states that BMI supports competitive advantage and market differentiation. However, according to the author, BMs must identify and meet the needs of consumers through an organization dedicated to carrying out actions aimed at achieving these objectives.

To innovate a BM, the company can transform only some of the current processes. For Khanagha, Volberda, and Oshri (2014), BMI can vary from specific changes that aim to improve specific parts of BM, the expansion of the current BM, and, in more radical cases, the transformation of BM into another, wholly new and different one. BMI is a challenging activity, as it often implies acting on long-established practices in the organization, forcing those involved to go beyond their comfort zone (Euchner, 2016). It is a way to generate value and face unstable times (Pohle & Chapman, 2006) to improve the performance of organizations through models of income and costs, offers, and the achievement of value (Zott *et al.,* 2011). BMI also proposes a new way of organization and work that guarantees a competitive advantage to the company (Bonakdar, 2015). Rauch *et al.* (2009) show that, in unstable environments, with rapid changes and reduced product and BM life cycles,

future profit flows from existing operations are uncertain, and organizations constantly need to seek new opportunities.

Euchner (2016) presents the idea of the "innovation paradox in BM". According to the author, when an organization perceives the need, it must innovate in its current BM, but there is no time to wait for such a need to arise to start the innovation process. According to Nunes and Pereira (2021), investing in BMI does not necessarily have to be expensive, as some dimensions that make up a BM are not linked to financial aspects.

According to Zott and Amit (2010), a business model has three main elements: content, governance, and structure. These three aspects are interdependent and aligned with the organization's generation and capture of value (Zott & Amit, 2010). Content is related to the organization's products and/or services. It is what the company does (Zott & Amit, 2010). Structure describes how the activities are linked and captures their importance to the BM. It explains how things are done (Zott & Amit, 2010). Governance is related to who performs the activities. It is related to the locus of control of the flow of information, goods, and finances. It also includes the nature of control mechanisms such as trust and incentives.

III. Digital Transformation

DT can be defined as the change in the way an organization employs digital technologies to develop a new digital BM that supports the creation and adds more value to the organization (Kane et al., 2015; Verhoef et al., 2021), impacting not only the organization but the whole society (Adner, 2006). This phenomenon has been happening at an accelerated pace and without fully mastering its resources (Carvalho *et al.,* 2021).

Using new technologies or innovative ways of using technologies already available is fundamental to adapting BM to new realities, showing that DT is an essential part of the organization's survival and sustainable growth (Kim et al., 2021).

Verhoef *et al.* (2021) point out that the growing number of digital tools strengthens e-commerce, and introducing the DT process will have far-reaching effects on BMs (Chen et al., 2012; Kim et al., 2021). New digital technologies emerge constantly, showing the need for companies to adapt their businesses digitally (Verhoef *et al.,* 2021).

New digital technologies can easily become the new BM design and challenge traditional business rules. Companies not adapted to these changes risk becoming less attractive to customers and eventually being replaced by others who know how to take advantage of these technologies (Verhoef *et al.,* 2021).

DT is particularly relevant for established companies in the market. These companies will face challenges and obstacles in pursuing and implementing BMI and achieving DT. They are constantly forced to deal with conflicts and trade-offs between traditional and new business methods (Christensen et al., 2016). The shift to digital can often require a sharp departure from the status quo and lead to the obsolescence of existing BMs (Teece, 2010).

Changes can be gradual, with minor changes (e.g., digitization or digitization) to gradually move from traditional to digital business. The different phases guiding digital changes to the DT process have essential and urgent strategic resources (Verhoef *et al.*, 2021). Resources represent the enterprise's ownership, control of assets, and capabilities. The primary digital resources needed for the DT process are digital assets, digital agility, digital network capacity, and big data analysis capacity (Verhoef *et al.,* 2021).

The integration between physical and digital has become a key factor for the survival of organizations (Morais, 2020). Physical and digital environments have different positions but converge to streamline experiences, which is a tendency to reach consumers in new product/service formats that combine the two worlds. Digital development has accelerated social and organizational transformations, leading companies to adapt their BMs to remain relevant in the corporate environment.

There is a need to rethink the BM at a structural level and not just consider the operational one but also redefine the company's strategy; focusing on the digital world is the starting point. Morais (2020) exposes that, in general, companies are focused only on revenue generation, but a focus on medium and long-term business strategy is necessary. Siebel (2021) elaborates that leadership needs to develop a more discerning look at the technologies that lead to DT nowadays than was required in the past. Technological changes are much more profound at the heart of the institution.

For the success of the DT process, Borges (2021) highlights the importance of a culture in which people feel free to expose their ideas and that these new ideas are not ignored or even ridiculed. The need for qualified people is also highlighted. Ribeiro (2018) explains that successful companies constantly train their employees; the more perfected and developed they are, the better they produce, collaborate to reduce costs, save materials and energy, better serve customers, create products, etc.

For Baltzan and Phillips (2015), a company's success lies in the unity of the work of all departments. Borges (2021) states that the engagement and inclusion initiative must come from senior management and points out the need to hold meetings to align the strategy. An environment that encourages and explores new ideas and concepts is essential for the company's DT to succeed. When applied to operations, DT seeks to

reduce costs and increase efficiency and quality. It is necessary to understand whether the processes experienced over the years still make sense in the present or can be adapted or incorporated into new trends.

Technology was used only to optimize the organization's procedures for a long time. A well-defined digital strategy places technology as a tool allied to decision-making. Data is constantly provided and applied; it is up to the company's management to transform it into a strategy (Morais, 2020). Morais *et al.* (2018) highlight that business intelligence provides fast, summarized, accurate, and agile data on business performance to managers, facilitating the decision-making process. Organizations that need to implement an adequate business intelligence solution suffer competitive disadvantages compared to others.

Cloud computing is one of the technological pillars that led to DT. Siebel (2021) states that without cloud computing, DT would not be possible since storing data on external servers allows for significant savings, flexibility, and scalability, mainly when associated with extensive data resources, another driving vector for DT. Artificial intelligence drives DT, comprising machines and software capable of learning and solving problems that would once require human intelligence. Another technology is the Internet of Things (IoT), which is based on merging a physical and digital world in which all individuals constantly communicate and interact with each other and objects (Morais *et al*., 2018).

Figure 1 represents the structure of the analysis of the digital transformation process, considering the elements of a BM proposed by Zott and Amit (2017, 1010, 2008) and the relationship of these dimensions with the literature regarding DT.

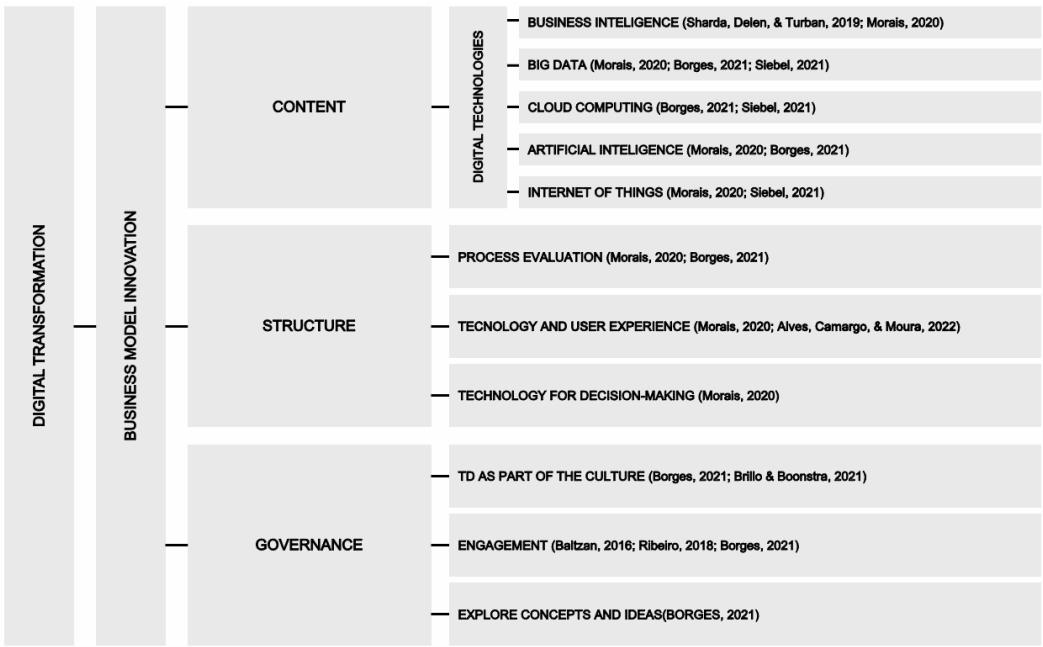

Figure 1 – Research Framework
Source: developed by the authors

IV. Methodological Procedures

This research, of applied and descriptive character, comprised the development of field research with companies of the sector object of study. We chose to investigate the footwear sector in Rio Grande do Sul, considering that the state has one of the world's largest conglomerates of footwear producers. The state ended the year 2022 with 87,000 people employed in the sector, 14.7% more than in 2021, and is the state that employs the most in the footwear industry (Abicalçados, 2022).

The history of footwear in the state dates back to the 19th century, with the arrival of German and Italian immigrants and the beginning of tanneries. According to information from Abicalçados (2022), the first factory of the product appeared in the country in 1888 in Rio Grande do Sul. Over the years, the state has become a world reference in the sector.

The four companies were selected for convenience and accessibility, considering the following requirements: to be headquartered in Rio Grande do Sul State, to have been in the market for at least ten years, and to focus on footwear aimed at adults. Semi-structured interviews were conducted with managers of these organizations following a script developed from the research framework. All interviews took place in the first half of May 2023.

Organization 1 (O1) is a large company located in Vale dos Sinos. It was founded 5 and 6 decades ago and focuses on women's footwear. Interviewee 1 is the e-commerce manager, who has been working at the company for six years and has a degree in Publicity and Propaganda. The interview lasted 37min24s.

Organization 2 (O2) is a large company located in Serra Gaúcha, founded between 5 and 6 decades ago and whose focus is women's, men's, and children's footwear. Interviewee 2 is the coordinator of digital projects, working in the company for five years and with training in Management Processes. The interview lasted 35min12s.

Organization 3 (O3) is a small company located in Vale do Paranhana. It was founded between 5 and 6 decades ago and focuses on men's shoes. Interviewee 3 is an Administrative Assistant who has worked in the company for ten years and has a degree in Business Administration. The interview lasted 63 minutes and 12 seconds.

Organization 4 (O4) is a medium-sized company located in Vale dos Sinos. It was founded between 1 and 2 decades ago and primarily produces women's footwear. Interviewee 4 is a manager and founding partner with training in Management for Innovation and Leadership. The interview lasted 37 minutes and 51 seconds.

All interviews were recorded, and the audios were transcribed. The analysis comprised tabulation based on the content analysis technique. The elements indicated in Figure 1 were defined as the categories of analysis to enable the grouping of data and the extraction of results, following the recommendations of Bardin (2002).

V. Digital Transformation and Innovation in Business Models

Innovating is essential to ensure competitive advantages and differentiation (Teece, 2010), and DT is necessary to guarantee the tools that support it. All respondents claim that the companies where they operate are going through the DT process. At O1 and O2, a board was created to consider using technologies applied to the business. This practice aligns with what was exposed by Rabelo (2019 *apud* Morais, 2020), who claims that it is essential for the DT process that technology occupies a central position in the company's strategy, to the point of causing a radical change in its structure. At O4, the DT process "comes from the cradle" (INTERVIEWEE 4) since the company was born as an e-commerce where products are made on demand. For E3, the DT process is happening more slowly but steadily. For the interviewee, the fact that the company is over 50 years old and has a portfolio of more "traditional" products and customers (INTERVIEWEE 3) makes the company think about DT more organically, inserting new technologies as they go.

As exposed by Verhoef *et al.* (2021), respondents 1, 2, and 4 pointed to competition as a motivating factor for investments in DT. According to the authors, competition has been changing sharply with the advancement of technologies. Roger (2016) states that the advancement of digital technologies makes companies feel obliged to seek their space with "asymmetric" competitors – companies outside the sector – but that offer similar values to the customer. Interviewee 1 also points to the fact that the company seeks to always be at the forefront, looking at its current position in the market and projecting the company's future as another significant factor that boosted investment in DT. Respondents also say that investing in DT is essential to "continue in the market" (INTERVIEWEE 1), "being able to deliver the right product, at the right time" (INTERVIEWEE 2), "to make the way we do things a little easier" (INTERVIEWEE 3) and "guarantee the necessary strength to continue facing strong waves without being shaken" (INTERVIEWEE 4).

There is a consensus among the four companies when talking about BMI, as they all state that, from the moment they started investing in the DT process, they noticed the changes in the current model; they saw their staff change, as they felt the need to have people with specific skills that met the needs of each one (INTERVIEWEE 1; INTERVIEWEE 2; INTERVIEWEE 3; INTERVIEWEE 4); there was the creation of specific departments that dealt with the subject of innovation and DT (INTERVIEWEE 1; INTERVIEWEE 2); optimized processes using technology (INTERVIEWEE 1; INTERVIEWEE 2; INTERVIEWEE 3; INTERVIEWEE 4); and they are being able to deliver better products/services to customers (INTERVIEWEE 1; INTERVIEWEE 2; INTERVIEWEE 3; INTERVIEWEE 4).

VI. Digital Transformation Practices and the Content Dimension

The use of technology is different in each company. As they are companies of similar size, O1 and O2 have similar characteristics regarding the technologies used. Both companies have a solid and consistent Business intelligence (BI) system, which provides data to aid decision-making. According to Morais (2020), having a system capable of collecting, organizing, analyzing, and monitoring data is essential for better decisions. Both interviewees claim that after implementing the BI system, the decision-making process became much more agile as access to information became more accessible. E1 reports that a data transformation movement led by the BI team migrated all company information access to the same system. It is expected to unify decisions and information bases. Still, according to the interviewee, the use of BI in the company allowed the leaders to have a "holistic" view (INTERVIEWEE 1) of the business, as the system consolidates data from different areas of the organization, allowing the identification of standard relationships between different sets of

data, providing a complete understanding of the performance of the whole company. The interviewee also points out the ability to identify hidden trends and patterns in the data, helping the company anticipate many market changes, identify growth opportunities, and mitigate potential risks. Foster and Kaplan (2011) argue that companies must be able to predict trends and adapt to rapid changes in the market to avoid stagnation and decline. At O2, E2 states that BI allowed an improvement in the company's operational performance, facilitating the monitoring and measurement of performance in real-time, which allowed the organization to be able to identify areas of low performance and take corrective measures quickly, leading to a general improvement in operational performance and process efficiency. Power and Heavin (2017) discuss how decision support systems such as BI can provide crucial information to improve operational performance. The authors highlight the importance of accurate data, practical data analysis, and continuous performance monitoring for operational improvement. E2 also highlights the increase in efficiency and cost reduction as a positive effect of implementing the BI system, stating that it was crucial to help the organization identify operational inefficiencies and areas of waste. The company reduced costs and increased operational efficiency by optimizing processes and resources. In addition, easy and quick access to information helped save time for employees, allowing them to focus on more strategic tasks. Ponniah (2011) explores the use of BI as a tool to optimize business processes, providing relevant information to identify inefficiencies and improve operational efficiency.

Regarding the use of data for strategy, E4 states that a significant change was noticed in the decision-making process from the moment there was an organization in the company's data collection and analysis flow. Previously, decisions were very informal, based on many “guesses” (INTERVIEWEE 4). From the moment data analysis became part of the business model, the company could make more strategic decisions. Regarding the use of data to support decision-making, Morais (2020) points out that this helps the company to take fewer risks, as decisions are based on events. Figure 2 presents the summary of innovations related to content and Business Intelligence.

TECHNOLOGY	AUTHORS	COMPANIES	Identified benefits
BUSINESS INTELLIGENCE	Foster & Kaplan (2001) Ponniah (2010) Power & Heavin (2017) Sharda, Delen, & Turban (2019) Morais (2020)	O1	Agility in decision making
			Unified view of the business
			Better understanding of the organization's performance
			Identifying hidden patterns in data
			Better identification of opportunities
			Reduction of operating costs
			Improved operational performance
			Better ability to identify opportunities
			Better trend anticipation ability
		O2	Agility in decision making
			Increased efficiency of the organization
		O3	Unidentified technology in the company
		O4	Formalization of the decision-making process
			More strategic decisions

Figure 2 – Content and Business Intelligence
Source: developed by the authors

Organizations 1, 2, and 4 use big data in their business. Respondents claim to have resources for capturing and processing data to improve decision-making through more detailed and up-to-date information about the market, customers, competitors, and trends. Interviewees 1 and 2 state that using big data in their respective companies has allowed organizations to improve customer personalization and segmentation, allowing a deeper understanding of their preferences. The E2 and E4 point out that processing massive amounts of data captured by companies is fundamental to assisting in innovation and creating new products. Brynjolfsson and McAfee (2014) explore the relationship between using big data and creating new products. The authors discuss the success factors and enablers for leveraging big data in innovation, including generating insights for designing and developing innovative products and services that meet market demands. Companies also use the resource to anticipate using raw materials, where they can tabulate consumption data to project times when certain items are most used, thus achieving better price negotiations with suppliers. The companies' actions align

with what Borges (2021) exposed when he states that companies capable of structuring a historical database have the most excellent chance of winning over customers and reducing competitiveness with competitors. Figure 3 presents the synthesis of innovations related to content and Big Data.

TECHNOLOGY	AUTHORS	COMPANIES	IDENTIFIED BENEFITS
BIG DATA	Ahlemann & Brynjolfsson (2012) Morais (2020) Borges (2021) Siebel (2021)	O1	Efficiency in customer personalization and segmentation
			Better understanding of customer preferences
			Optimization of raw material purchase
		O2	Efficiency in customer personalization and segmentation
			Better understanding of customer preferences
			Innovation and creation of new products
			Better market data analysis
			Identification of opportunities
			Optimization of raw material purchase
		O3	Unidentified technology in the company
		O4	Innovation and creation of new products
			Better market data analysis
			Identification of opportunities
			Optimization of raw material purchase

Figure 3 – Content and Big Data
Source: developed by the authors

Companies 1, 2, and 4 also claim to use cloud data storage services. On the subject, E1 points out that he perceives the ease of access to system folders as the main advantage. According to the interviewee, the use of cloud computing allows users to access their applications, data, and files from anywhere and at any time, as long as they have an Internet connection, facilitating collaboration between teams that are distributed in different states, promoting productivity and allowing teams to share information and work together in real-time. E4 corroborates what was exposed by E1, stating that storing data in the cloud facilitated the company's operation worldwide. What was exposed by the interviewees is in line with what was proposed by Bratianu and Bejinaru (2017). The authors explain that cloud computing allows remote access to resources, making work more flexible and allowing efficient collaboration between teams. Figure 4 presents the summary of innovations related to content and cloud computing.

TECHNOLOGY	AUTHORS	COMPANIES	IDENTIFIED BENEFITS
CLOUD COMPUTING	Bratianu & Bejinaru (2017) Morais (2020) Borges (2021) Siebel (2021)	O1	Ease of remote work
		O2	
		O4	
		O1	Information sharing
		O4	
		O2	
		O3	Unidentified technology in the company

Figure 4 – Content and Cloud Computing
Source: developed by the authors

None of the companies interviewed effectively use IoT (Figure 5) and artificial intelligence (Figure 6). E2 claims that tests are being done at the company, but there is nothing concrete.

TECHNOLOGY	AUTHORS	COMPANIES	IDENTIFIED BENEFITS
INTERNET OF THINGS	Morais (2020) Siebel (2021)	O1	Unidentified technology in the company
		O2	Technology in testing phase, with no perceived results
		O3	Unidentified technology in the company
		O4	Unidentified technology in the company

Figure 5 – Content and IoT
Source: developed by the authors

TECHNOLOGY	AUTHORS	COMPANIES	IDENTIFIED BENEFITS
INTELIGÊNCIA ARTIFICIAL	Morais (2020) Borges (2021)	O1	Unidentified technology in the company
		O2	Technology in testing phase, with no perceived results
		O3	Unidentified technology in the company
		O4	Unidentified technology in the company

Figure 6 – Content and Artificial Intelligence
Source: developed by the authors

VII. Digital Transformation Practices and the Structure Dimension

Structure refers to the tangible and intangible elements of the company's organizational configuration. According to Zott and Amit (2010), these elements form the basis on which the BM is built and operationalized. Structure is essential in operationalizing and implementing the activities necessary to deliver customer value and obtain a competitive advantage.

Process mapping represents a vital role in the DT process. It helps to identify and understand existing workflows, allowing a detailed analysis of how activities are carried out and the bottlenecks and opportunities for improvement. Hammer (1990) highlighted the importance of rethinking and redesigning processes before automating them, emphasizing the need to identify and eliminate inefficiencies before applying digital technologies. Ross, Weill, and Robertson (2006) emphasize the importance of mapping processes as part of the enterprise architecture strategy, highlighting that aligning processes with the business strategy is fundamental for digital transformation. In this context, respondents claim that before developing and implementing any digital project, there is always a study and mapping of the processes involved.

This mapping, combined with the insertion of technologies, allows the company to evolve in its path of digital transformation. E3 explains that the company emerged at a time when energy was supplied by a "water wheel" (INTERVIEWEE 3), and over time, in order to remain competitive in the market, the company needed to automate production with machines. For this, the entire footwear production process was designed, and then solutions were sought in the market that could be used at each stage. The interviewee points out that, even with machines in production, human labor is still indispensable, as footwear is still a very artisanal product. Nof (2009) explores the importance of industrial automation in improving organizations' efficiency, productivity, and competitiveness. The author shows how applying advanced technologies such as robotics, cyber-physical systems, and IoT is vital in industrial automation.

To E1, process analysis is present within the company, although no formal manual exists. The interviewee points out that whenever there is the possibility of using a new technology and/or tool, there is a meeting between the teams involved, the one that will develop/implement the technology and the team whose scope will be impacted by its use. The team that will benefit from the tool/technology is responsible for describing the process step by step so that the team responsible for the development can analyze all aspects and develop the best solution.

The same happens at O2. The only difference between the two organizations concerns the formalization of the process. According to E2, all the mapping carried out by the teams is incorporated into a process manual, made available to the company; according to the interviewee, "any person in the company needs to be able to do it if the person responsible for the activity is not available" (INTERVIEWEE 2). Davenport (1999) explores the importance of cataloging and documenting business processes to understand an organization's activities and workflows. The author highlights how the cataloging of processes can lead to greater efficiency and effectiveness of operations. Similarly, E4 claims that there is a constant mapping of processes, both for the implementation of new technologies and to assess whether the steps remain relevant or can be, in some way, optimized.

Respondents claim to notice an improvement in the delivery of experience to customers after implementing digital tools. E1 highlights the implementation of "pick up at the store and infinite shelf" (INTERVIEWEE 1). The first concerns the possibility for the customer to make an online purchase through the brand's website or application and be able to pick up the product at the physical store closest to their address. The second refers to the opposite activity; the customer buys from the seller in a store and receives the product at home. The interviewee states that there was an evolution in value when the company became omnichannel. Alves, Camargo, and Moura (2022) point out that companies should always seek ways to exceed customer expectations, providing unique shopping experiences and ensuring ever-increasing consumer satisfaction.

Similarly, E4 points out that, with the opening of the company's first physical store, which previously operated only with online commerce, it was necessary to think of strategies to captivate consumers accustomed to online shopping. The interviewee points out that the starting point was thinking about the store's physical layout and incorporating elements similar to the brand's website, such as the characteristic colors. Adaptations

were also necessary for the structure of the store, which does not have any volume of stock; there are only products from the current collection with a varied numbering grid, where the customer tries it on, makes an online purchase in the store, and receives the product at home. The companies' actions align with what Alves, Camargo, and Moura (2022) exposed when they show that knowing the customer's profile and needs is the best path to success, allowing better outlining strategies.

E3 shows customers more subtle perceptions of delivery. The interviewee points out that the use of tools such as sales via WhatsApp and Instagram was fundamental for the company to be able to reach a larger audience. Still, according to the interviewee, the company is studying how to implement its e-commerce to serve all of Brazil. Today, besides the physical sale and digital tools mentioned above, the brand's products are available on a marketplace. However, a reseller makes the offer without any connection with the business. Figure 7 presents the synthesis of innovations related to structure.

TOPIC	AUTHORS	COMPANIES	SYNTHESIS
PROCESS EVALUATION	Hammer (1990) Davenport (1999) Ross, Weill, & Robertson (2006) Nof (2009) Morais (2020) Borges (2021) Siebel (2021)	O1	It has an analytical approach to processes, even without a formal manual. New technologies and tools are discussed in meetings between development teams and impacted teams
		O2	Process mapping takes place, but formalization takes place through a process manual accessible to everyone in the company. Continuous mapping, both to implement new technologies and to optimize existing steps.
		O3	The footwear production process was designed and the company looked for solutions in the market for each stage, but human labor is still essential due to the handmade nature of the product.
		O4	Conducts a continuous mapping of processes, aiming to implement new technologies and evaluate the relevance and possibility of optimizing the steps.
CUSTOMER TECHNOLOGY AND EXPERIENCE	Morais (2020) Alves, Camargo, & Moura (2022)	O1	Use of tools that allow the customer to buy in the store and receive the product at home and vice versa.
		O2	Use of tools that allow the customer to buy in the store and receive the product at home and vice versa.
		O3	Use of sales via WhatsApp and Instagram to reach a larger audience, considering implementing its own e-commerce.
		O4	Achieving an evolution in value by becoming omnichannel, seeking to exceed customer expectations and provide unique shopping experiences to ensure greater satisfaction.
TECHNOLOGY FOR DECISION MAKING	Morais (2020)	O1	Implementation of the BI system accelerated the decision-making process due to easier access to information.
		O2	Implementation of the BI system accelerated the decision-making process due to easier access to information.
		O3	Not identified in the company.
		O4	Organization of the data collection and analysis flow brought about a significant change in the decision-making process.

Figure 7 – Synthesis of structure element
Source: developed by the authors

VIII. Digital Transformation Practices and the Governance Dimension

According to Zott and Amit (2010), governance involves who performs the activities. The four interviewees claim that the DT process has impacted the company's governance. E1 explains that at O1, a DT board was created, with a team that monitors, invests, researches, and develops technologies for internal use. Still, according to the interviewee, the company encourages and invests in training so that its employees can participate in this process.

E1 points out that although a team is responsible for DT, this subject has become a pillar within the corporation, becoming part of the company's culture. For Borges (2021), having the DT rooted in the organization's core is fundamental for the success of the process because, as stated by Brillo and Boonstra (2019), the company's culture shows its most vital and profound aspects. The interviewee points out that innovation is so present in the day-to-day organization that multisectoral teams meet to discuss problems and develop possible solutions, thus creating a favorable environment for the emergence of ideas.

At O2, E2 also affirms the creation of sectors responsible for the DT process. The interviewee points out that employees are encouraged to participate in the process but that "because it is a very traditional company, not everyone accepts it" (INTERVIEWEE 2). Still, according to the interviewee, some employees fear that "it is more to do" (INTERVIEWEE 2).

At O3, the interviewee states that no specific area is responsible for the changes. As it is a family business, niche, and without a more structured organization, efforts are diluted among the three prominent leaders, the founder's sons. Still, according to the interviewee, as it is a small and very traditional company, there are many limitations on the subject, especially when the owner is involved, which means that many decisions are taken "in secret" (INTERVIEWEE 3) and only communicated in case of positive results.

All companies claim to provide training to people involved in DT processes. At O2, this happens formally, where, according to E3, courses, training sessions, and lectures are held every six months to help develop and improve the skills of employees who can contribute to the process. For E1, the company invests heavily in training employees because "it makes a point of seeking solutions to its problems within its structure" (RESPONDENT 1). The organization offers a training program to employees who meet the requirements and

whose skills learned will add to the company. O3 and O4 invest in more informal employee training in a less structured and on-demand way. However, as Ribeiro (2018) stated, training does not only take place through classes and handouts. According to the author, the day-to-day of the company, "[...] observing a service, demonstrating the execution of a task" (Ribeiro, 2018, p.12), are also teaching tools. Figure 8 presents the synthesis of innovations related to governance.

TOPIC	AUTHORS	COMPANIES	SYNTHESIS
DT AS A COMPANY CULTURE	Borges (2021) Brillo & Boonstra (2021)	O1	Technology and digital transformation are part of the company's culture
		O2	Technology and digital transformation are part of the company's culture
		O3	The company is taking the first steps towards digital transformation. Management still does not prioritize process.
		O4	Digital company from birth, uses many online resources, phygital movement.
ENGAGEMENT	Baltzan (2016) Ribeiro (2018) Borges (2021)	O1	The company invests in training for teams to be part of the digital transformation movement, and offers academic incentives to develop employees.
		O2	Formal and constant training, which seeks to improve the skills of employees. The company has a culture of seeking resources within the institution itself.
		O3	Informal training as needed. Often observational.
		O4	Informal training as needed. Often observational.
EXPLORE NEW IDEAS AND CONCEPTS	Borges (2021)	O1	Creation of a specific board to deal with innovation and digital transformation, constant encouragement to innovative thinking.
		O2	Creation of a specific board to deal with innovation and digital transformation, constant encouragement of innovative thinking, training, qualifications, and innovative environments.
		O3	Aspect not identified in the company.
		O4	Leaders seek to develop their own digital solutions within the company.

Figure 8 – Synthesis of governance element
Source: developed by the authors

IX. Final Considerations

Analyzing the content dimension, the literature review identified the existence of some digital technologies that directly impact what is offered by organizations. The use of Business Intelligence, Big Data, and Cloud Computing tools was identified in the organizations studied. Different benefits were identified from the use of technologies. Using Business Intelligence improves decision-making processes, allowing opportunities to be better exploited. Big Data, in turn, increases efficiency for personalization and segmentation for customers, as well as optimization in purchasing raw materials and a better understanding of customer preferences. Cloud computing has allowed better conditions for remote work and information sharing. The Internet of Things and Artificial Intelligence technologies have yet to be used by organizations, and in just one of them, tests are being carried out for their implementation.

At the beginning of this study, digital technologies were identified as part of the content element. Based on the analysis of the empirical research results, it was identified that the use of these technologies is not restricted to the content dimension but also directly impacts the structure and governance elements.

Regarding the structure element, the literature review identified innovations related to process evaluation, customer technology and experience, and technology for decision-making. Evidence related to these three aspects was identified in the companies studied, proving that digital transformation leads to the need for innovations in the structural element of their business models.

Regarding the governance element, the literature review allowed the identification of three categories investigated in the studied organizations. Regarding DT as part of the company's culture, it was observed that this is the necessary path for organizations to follow in the evolution of digital technology. Employee engagement reflects the results of organizational efforts to prepare people for the digital environment. Still, organizations showed divided behaviors when exploring new ideas and concepts. While two already have governance models with identified DT, the other two have different behaviors.

The results found in the empirical research developed in this study are limited and cannot be generalized. However, they allow a first understanding of DT through the innovation elements in business models. Considering that DT involves the adaptation of BM from the introduction of digital technologies, understanding how industrial companies are adopting these technologies and their impacts on BMs becomes relevant for contemporary scientific and business contexts.

The DT theme still lacks scientific advances, and this study sought to contribute in this sense. Despite its limitations, it is considered to contribute to the advancement of research on TD. In addition, it opens the

discussion to the context of a traditional industrial sector that faces intense competition and the need to adapt to international pressures.

As for the contributions of this work to the sector, it is mentioned that it contains data and solutions that can be interpreted and adapted to organizations according to their needs. For organizations that still need to start the DT process, this study can serve as an incentive guide for the corporation, as it contains information about the DT process, its proven benefits, and the need to build a digital culture within the organization. For companies starting the process, the study can help through the data collected and the practices and results already achieved by the researched organizations. As managerial contributions, the research warns about the challenges of DT for traditional sectors that need to keep up with the evolution of digital technologies to remain competitive in the market.

As for the limitations of the research, we highlight that there needs to be an analysis of DT processes, seeking to understand how changes occur and the fact that there is no deepening on the use of digital technologies and their impact on organizational performance. As recommendations for future studies, there is a need to deepen the subject by expanding aspects related to innovation in business models, particularly detailing the DT process. Still, considering that some DT concepts consider it an evolutionary process, a study is suggested to verify if there is, effectively, a process from digitization to DT. There is also an opportunity to investigate the challenges companies face in the face of TD. A quantitative analysis of the impacts of changes caused by the DT process in organizations is also recommended.

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