

Digital Transformation Process in the Profitability of a Medicine Distribution Company, Trujillo – 2024

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ABSTRACT

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The general objective of the study was to establish the influence of digital transformation on the profitability of a pharmaceutical distribution company in Trujillo, 2024. The research employed a quantitative, non-experimental, cross-sectional, and explanatory approach. The population consisted of 96 employees of the company, and a probabilistic sample of 78 participants was obtained through random selection. Questionnaires with ordinal scales were used. A descriptive and correlational analysis was conducted using SPSS software version 26. The results showed a moderate (0.756) and significant relationship, with a 99% influence between digital transformation and profitability. Process digitization (0.731) influenced profitability by 59%, improvement in customer experience (0.513) by 62%, business model innovation (0.714) by 64%, and optimization of the value chain (0.670) by 64%. It is concluded that digital transformation influences the company's profitability, with business model innovation and value chain optimization being the most influential factors.

Keywords: Digital Transformation, Process Digitization, Customer Experience, Business Model Innovation, Business Profitability

I. INTRODUCTION

Digital transformation is important for companies at a global level, determining their ability to generate profitability and maintain competitiveness in a more dynamic and globalized way in a business environment. The adoption of digital technologies drives operational efficiency, innovation, and offers new opportunities for growth and expansion in international markets. In summary, digital transformation not only improves efficiency and innovation, but also opens up new prospects for growth and competitiveness in a changing business context (Smith, 2024).

The Sustainable Development Goal (SDG), designated as the ninth, entitled "Industry, innovation and infrastructure", aims to significantly increase accessibility to information and communication

technologies. In addition, it aims to ensure universal and affordable access to the Internet in less developed nations by 2020. In this way, it contributed to the advancement of the pharmaceutical industry and the promotion of sustainable development, as evidenced by Torres et al. in their 2023 study.

In today's business context, the lack of adoption of digital transformation becomes a significant concern, especially internationally, where companies face increasing pressure to adapt to a more digitized and competitive business environment. In Latin America, studies such as that of Trujillo et al. (2022) show that digital transformation focuses mainly on areas such as education, companies, and people. It is concluded that global digitalization was already underway, but it accelerated considerably due to the COVID-19 pandemic.

In the Peruvian pharmaceutical sector, distribution companies face significant challenges when adopting digital transformation, which affects their profitability and competitiveness. According to INEI data from 2020, only 25% of these companies have implemented advanced digital strategies, while another CCL study revealed that those lacking an effective digital strategy experience a 20% decrease in their profit margins. These findings underscore the urgent need for these companies to address digital transformation to improve their efficiency and become more competitive in the marketplace. In the Peruvian context, only 35% of pharmaceutical companies have implemented advanced digital strategies, which has led to an estimated 15% loss in annual revenue for drug distribution companies that have not adopted digital solutions (Deloitte, 2021).

The drug distribution company experienced remarkable economic growth, identifying an urgent need to improve its operational efficiency and maintain a competitive place in the market. Before the impact of COVID-19, the company had drawn up an ambitious plan to improve technological processes focused on digitalization and automation. However, the implementation of these improvements has faced challenges due to the health crisis and associated restrictions. Despite this, the commitment to modernization persists and is being carried out gradually. To this end, employees are fully informed about these technological improvement initiatives to make the most of their benefits in their respective job functions. Proper training and coaching were critical to ensure a smooth transition with the new digitized systems and processes. Finally, these improvements increased employee productivity, as well as contributing significantly to the company's overall profitability and continued economic growth.

There are various theoretical and conceptual contributions that define digital transformation as the union of digital transformation in all aspects of a business, fundamentally how it works and how it gives value to its customers (Ávila-Guerrero et al., 2023). This process involves a re-evaluation and re-engineering of traditional business processes to adapt to the constantly evolving digital environment (Proaño et al, 2018).

Digital transformation has emerged as a fundamental epistemological concept of contemporary business management in theory and practice, characterized by the union of advanced technologies in the improvement of operational efficiency and competitiveness. Gallego and Oliva (2022) argue that the technological revolution, based on big data, the Internet of Things and the cloud, for the revitalization of current and future manufacturing production, consolidating Industry 4.0. This perspective is supported by Aguirre (2022), who proposes an innovative methodology based on literature review that highlights the need for strategic alignment and diagnosis in digital transformation. Straková et al. (2022) also emphasize that digital transformation is crucial for SMEs, improving process management and the value chain, which is indispensable for their competitiveness in a changing environment. Yonghong et al. (2023) stress that while digital transformation may initially reduce profitability, in the long term it improves financial performance and operational efficiency. These studies converge on the idea that digital transformation is not only a technological tool, but a comprehensive strategic process that reconfigures the epistemological bases of business management, aligning technological innovation with organizational and market objectives.

The Diffusion of Innovation Theory was developed by Everett Rogers in the field of digital transformation and this is corroborated in the weekly book "Diffusion of Innovations" (Pérez & Terrón, 2004). This theory provides a framework for understanding how and why innovations, including digital technology, are adopted in organizations and society at large (Terrón & Pérez, 2004).

According to this theory, the adoption of an innovation, such as digital transformation, follows a process that is characterized by diffusion through different segments of the population or an organization (Scoponi et al., 2011). Rogers delineated five distinctive categories of adopters in his celebrated work, characterizing these groups as innovators, early adopters, early majority, late majority, and laggards. Each of these categories has different characteristics and adoption times (Velazco Florez et al., 2016). The Diffusion of Innovation Theory also highlights the importance of some factors in the adoption of an innovation, such as the perception of relative advantage, its compatibility with existing values and experiences, its perceived complexity, the possibility of experiencing it before full adoption, and the observability of its results (Castrillon & Cerradelo, 2015). Organizations are embarking on digital transformation with the aim of staying competitive in a progressively digitized market environment. Technological advances, such as artificial intelligence, big data and the Internet of Things are some of the main catalysts for this evolution, are key drivers of this change. In addition, customer pressure and expectations for a seamless digital experience are also driving companies to adopt digital transformation strategies (Del Do et al., 2023).

Organizations can adopt a number of strategies and best practices to choose challenges that maximize the benefits of digital transformation. These include creating a clear and shared vision for digital transformation, fostering a culture of innovation and experimentation, and collaborating with external partners to leverage additional expertise and resources. In addition, instruction and digital skills development among employees are critical to long-term success (Miranda-Torrez, 2023).

It is important to measure and evaluate the effect of digital transformation in terms of business outcomes and effectiveness in achieving strategic objectives. This may involve tracking key metrics such as customer satisfaction, profitability, operational efficiency, and market share. In addition, continuous feedback and strategy adjustment are necessary to adapt to the changing digital world (MinTIC, 2020).

Implementing and digitizing processes not only affects individual organizations, but also the social economy as a whole to contribute to economic growth, job formation and quality of life. However, it also poses challenges in terms of digital inequality, data privacy, and cybersecurity. Therefore, it is important to consider the social and ethical impacts of digital transformation in the design and implementation of digital strategies (Delgado, 2020).

As digital transformation continues to evolve, it's important to stay on top of emerging trends and promising areas of research. This includes the development of new disruptive technologies, such as quantum computing and augmented reality, as well as exploring new ways of business organization and collaboration in a digital environment. In addition, future research could focus on understanding the long-term effects of digital transformation on society and the economy, as well as on identifying effective strategies to achieve challenges that maximize benefits in this technological change (Delgado, 2020).

Digital transformation encompasses multiple dimensions, ranging from technological infrastructure to organizational culture (Miranda-Torrez, 2023). These dimensions include the Digitalization of processes, this dimension focuses on the automation and modernization of business processes using digital technologies (Sabino, 2020). This involves reengineering processes to make the most of digital capabilities and improve operational efficiency; the Improvement of the customer experience, here, seeks to optimize the relationship between the customer and the company, through the use of digital technology (Cerezo & Barroso, 2022). This includes personalizing products and services, simplifying purchasing processes, and improving customer service through digital channels; innovation in business models, this dimension involves the exploration and adoption of new approaches and business models facilitated by digital technology, involving the introduction of digital products or services, the creation of digital platforms or the monetization of data (Canto et al., 2020); The optimization of the value chain in the company is carried out through the integration of digital technologies at all stages, from the acquisition of resources to the delivery of the final product to the customer, ensuring the implementation of software in the supply chain, the improvement of logistics through the use of data analysis and the optimization of production through automation (Sánchez Sailema, 2023). Likewise, digitalization requires a holistic approach that considers both technological and human and organizational aspects (Ávila et al., 2023).

In addition, it is stated that profitability is an essential concept in business management, since it indicates the ability of an organization to produce profits from its activities and resources. The evaluation of profitability is carried out through several financial indicators, including return on investment (ROI), net profit margin, and return on assets (ROA) (Soto, 2021).

In contemporary research on digital transformation, it has been shown that adopting technologies and digitizing business processes have a positive effect on the profitability and financial performance of companies. Yonghong et al. (2023) demonstrated that digital transformation in listed manufacturing companies has a positive and significant impact on financial profit, especially on inventory and asset turnover. Although there may initially be a reduction in profitability, as digitalization progresses, the net sales margin and total return on assets tend to increase. Similarly, Straková et al. (2022) found that the lack of adequacy in the management of corporate processes, especially in the manufacturing and industrial sector, highlights the need for greater digitalization in the competitiveness and effectiveness of profitability in SMEs. On the other hand, Sklenarz et al. (2024) pointed out a negative interaction between digital transformation and the effect of market share on profitability, suggesting that managers and investors should reconsider the use of market share as a performance indicator in digital companies. These studies underline the complexity and specific dynamics of business profitability in the context of digitalization, highlighting the need for strategic approaches adapted to the particularities of each sector and company.

A key theory in the field of corporate profitability is the Market Efficiency Theory by Eugene Fama where he argues that the prices of financial assets accurately reflect all available information. According to this theory, financial markets operate with information efficiency, which means that the value of assets includes information accessible in the market at a given time (Sempere Campello, 2022).

According to the Market Efficiency Theory, the prices of financial assets, including stocks, bonds, and other instruments, expeditiously integrate any new pertinent information that may influence their valuation. This implies that investors do not have the ability to achieve anomalous returns consistently using public information, since such information is already incorporated into asset prices (Lera, 2015). The theory identifies three levels of market efficiency: weak, semi-strong, and strong. Weak efficiency indicates that asset prices already incorporate all historical price information, which means that analyzing past data does not allow for profits. Semi-strong and strong efficiency assert that prices also integrate all available public information, implying that it is not possible to make a profit using public information. Nor can profits be obtained through the use of privileged information (Quiroga, 2017).

There is a close relationship between profitability and risk in business financial decisions. According to Ross García (2018), investors usually demand a higher return to compensate for a higher level of risk. This means that companies that take on higher potential risks may have the opportunity to earn higher returns, but they also face greater uncertainty.

For decision-making, profitability influences all levels of the organization. As Teijeiro Álvarez et al. (2000) point out, managers use profitability measures to evaluate the company's performance and decide on investments and financing, and to evaluate the effectiveness of business strategies.

In shareholders, profitability is closely linked to value creation. According to Cortés et al. (2011), investors evaluate a company's profitability as an indicator of its ability to generate financial returns that exceed the cost of capital and increase the value of shares in the long term.

Profitability is also a key factor in business competitiveness. According to Chu Rubio (2020), profitable companies have a competitive advantage over their competitors, as they can reinvest their profits in product improvement, market expansion, and innovation, which allows them to maintain or increase their market share.

To improve profitability, companies can implement a variety of strategies. According to Zaldívar et al. (2020), these include minimizing costs, increasing operational efficiency, product and market diversification, and good asset and liability management.

Profitability measurement and analysis are fundamental processes for corporate financial management. According to Bravo Orellana (2013), this involves the use of tools and techniques such as financial statement analysis, financial ratios, and benchmarking with companies in the same sector to evaluate financial performance and make informed decisions.

A number of factors can influence a company's profitability. According to Laoyan (2022), a fundamental aspect is operational efficiency, which consists of optimizing resources efficiently by optimizing processes, minimizing production times and waste. A company that achieves high operational efficiency is able to achieve higher levels of profitability through minimizing costs and increasing productivity in its operations.

Working capital management is related to the efficient management of current assets and liabilities of an organization, this includes the management of inventories, accounts receivable and accounts payable. Effective working capital management has the potential to improve liquidity, decrease financial costs and optimize the use of available resources, which contributes to greater profitability in the company (Arreiza & Gavidia, 2020).

Digital transformation can have a significant effect on reducing a company's operating costs, systematizing processes and implementing digital technologies allows workflows to be optimized, human errors to be minimized, and labor to be reduced. According to the theory of operational efficiency, digitalization helps eliminate redundancies and improve accuracy in inventory management and logistics, as a result storage and distribution costs are minimized (Hernández & Veloza, 2020).

Digital transformation can also influence the increase in a company's revenue by expanding sales channels, and customer experience, this allows companies to access wider markets through e-commerce and digital marketing. The theory of perceived value suggests that digital technologies can improve the value proposition to the customer through personalized services, constant availability, and a more convenient shopping experience (Herrero, 2019).

II. METHODOLOGY

Research is classified as a study of an applied nature, aimed at addressing the problem in question. It was framed in a quantitative approach, since statistical analysis was used to present the data collected during the research (Coelho, 2020). The design adopted was non-experimental, since it does not involve maneuvering variables, but is limited to the observation of the phenomenon studied (Bernal, 2016). In addition, it was characterized by being transversal, by collecting data at a single time, and explanatory, since it involves the exploration and understanding of causal relationships between the influence of digital transformation (Ox) on profitability (Oy) through a predictable point of a food distribution company (M).

The conceptual definition of digital transformation involves the incorporation of digital technologies in each of the areas of an organization, which implies significant changes in its culture, processes, products, and business models to adapt to the digital environment (Miranda-Torrez, 2023). On the other hand; The operational definition of digital transformation refers to how this process is measured or carried out in practice. This involves identifying specific indicators, actions, and observable outcomes that reflect the degree of digitalization and changes made in an organization, through dimensions that include operational efficiency, working capital management, cost structure, and the ability to generate long-term sustainable revenue, with an ordinal scale for these purposes. On the other hand; The conceptual definition of profitability is understood as the ability of a company to produce profits or profits from its operations and assets. In a broader context, a company uses its resources to generate a positive financial return in favor of the company's owners and stakeholders. (Lera García, 2015). Likewise, the operational definition of profitability refers to how it is measured or estimated in practice. This involves identifying specific indicators and financial formulas used to calculate an organization's profitability. Some of the operational indicators used include the digitization of processes, the improvement of the customer experience, the enablement of new business models and the optimization of the value chain, with an ordinal scale for these purposes.

In this research, the population was made up of 96 employees of the company under study, for whom the inclusion and exclusion criteria are indicated, made up of aspects such as permanence in the position, the type of employment contract and availability to participate in the study. In addition to these criteria, factors such as work experience in the pharmaceutical sector and previous training in

topics related to digital transformation were considered. On the other hand, a probabilistic sampling process was carried out by randomly selecting the sample, obtaining a total of 78 workers from the company under study in Trujillo. The unit of analysis was made up of the workers belonging to this company, who were studied in relation to their perception, knowledge and experiences regarding digital transformation in the pharmaceutical workplace.

The data collection technique refers to a systematic method used to obtain and analyze numerical data in order to describe, explain, or predict social, psychological, or natural phenomena (Sánchez Martínez, 2022). These instruments are designed to measure variables of interest in a standardized and consistent manner, to compare and examine data collection. Common examples of quantitative instruments include multiple-choice questionnaires, Likert scales, psychometric tests, and structured observation records. In summary, in this research the technique was the survey and the instrument was the questionnaire. To ensure the validity of the instrument, the content was reviewed and validated by five experts in the field, who provided their assessments. Regarding the reliability of the instrument, it was applied to the participants, and it was evaluated using the analysis of Cronbach's alpha coefficient. To examine the data, this was done through the SPSS statistical software in its version 26. Descriptive statistics were applied to present the results obtained and explain in detail the levels of the variables under study. This process was carried out by developing frequency distribution tables, which served to contextualize and present the descriptive characteristics of the variables under consideration. Then, through a normality analysis using descriptive statistical measures such as mean, median, standard deviation, and symmetry index and joint kurtosis. Values above 5.99 in this index indicate a distribution that differs from normal scores. Sperman's Rho correlation statistic was applied to measure relationships and Nagelkerke's test to see the influence between variables and dimensions (Santa barbara Serrano, 2021).

III. RESULTS

Influence of the Digital Transformation Process on Profitability

Digital Transformation Process	Profitability			
	HIGH	MIDDLE	LOW	TOTAL
HIGH	54%	8%	0%	62%
MIDDLE	9%	29%	0%	38%
LOW	0%	0%	0%	0%
TOTAL	63%	37%	0%	100%

Source: Digital Transformation Process – Profitability

In Table 1, 54% of employees express that the company has a high level of digital transformation with high profitability, while 8% have medium profitability and 0% have low profitability. 9% have a medium level of digital transformation achieving high profitability, while 29% have medium profitability. This suggests that while digital transformation has a positive impact, with a medium level of investment in digitalization it produces only modest results compared to the high level.

Finally, the greater the investment in digital transformation

Influence of Process Digitalization and Profitability

Process Digitalization	Profitability			
	HIGH	MIDDLE	LOW	TOTAL
HIGH	47%	6%	0%	54%
MIDDLE	15%	31%	0%	46%
LOW	0%	0%	0%	0%
TOTAL	63%	37%	0%	100%

Source: Digital Transformation Process – Profitability

In Table 2, the results show that, in the drug distribution company, 47% with high digitalization achieve high profitability, likewise 6% obtain medium profitability and 0% low profitability. This means that the digitization of internal processes is important to maximize efficiency, reduce costs and improve profitability. For the medium level, 15% of the company obtains a high profitability, while 31% are at a medium profitability level. This means that, although the digitization of processes is important, it does not guarantee high profitability without a more comprehensive approach to digital transformation.

Influence of Improving Customer Experience and Profitability

Improving Customer Experience	Profitability			TOTAL
	HIGH	MIDDLE	LOW	
HIGH	45%	12%	0%	56%
MIDDLE	15%	23%	0%	38%
LOW	3%	3%	0%	5%
TOTAL	63%	37%	0%	100%

Source: Digital Transformation Process – Profitability

In Table 3, the results show that, in the drug distribution company, 45% focus on improving the customer experience by achieving high profitability, while 12% achieve average profitability. Consequently, it is important to invest in improving the customer experience to obtain solid financial results. For the medium level, 15% obtain high profitability, while 23% report medium profitability. Therefore, while improving the customer experience is important, it must be a fundamental part of a strategy to achieve financial success in the company

Influence of Innovation on Business Models and Profitability

Innovation in Business Models	Profitability			TOTAL
	HIGH	MIDDLE	LOW	
HIGH	54%	15%	0%	69%
MIDDLE	9%	22%	0%	31%
LOW	0%	0%	0%	0%
TOTAL	63%	37%	0%	100%

Source: Digital Transformation Process – Profitability

In Table 4, the results show that, in the drug distribution company, 54% indicate that by innovating their business models they achieve high profitability, while only 15% achieve medium profitability and 0% low profitability. Consequently, the ability to adapt and transform business models is a determining factor of financial success.

For the medium level, 9% achieve high profitability and 22% obtain medium profitability. Therefore, partial innovation is not enough to achieve consistently high profitability.

Influence of Value Chain Optimization and Profitability

Value Chain Optimization	Profitability			TOTAL
	HIGH	MIDDLE	LOW	
HIGH	54%	17%	0%	71%
MIDDLE	9%	21%	0%	29%
LOW	0%	0%	0%	0%
TOTAL	63%	37%	0%	100%

Source: Digital Transformation Process – Profitability

In Table 5, the results show that, in the drug distribution company, 54% significantly optimize their value chain to achieve high profitability, 8% obtain average profitability. None reports low profitability; Consequently, an optimized value chain directly influences an improvement in profitability margins by reducing costs and increasing operational efficiency. For the medium level, 9% achieve high profitability, while 29% achieve medium profitability; therefore, a partial or incomplete optimization does not generate the same financial results as a comprehensive optimization.

Influence of Digital Transformation and its dimensions on the Profitability of a drug distribution company, Trujillo – 2024

		Digital Transformation Process	Process Digitalization	Improving Customer Experience	Innovation in Business Models	Value Chain Optimization
Rho de Spearman	R	,756**	,731**	,513**	,714**	,670**
	Mr.	0.000	0.000	0.000	0.000	0.000
	Influencia Nagelkerke	99%	59%	62%	64%	64%

** . The correlation is significant at the 0.01 level (bilateral).

Table 7 shows that Sperman's Rho correlation coefficient to measure relationships and Nagelkerke's test to see the influence between variables and dimensions. Thus, there is a moderate relationship of 0.756 between the Digital Transformation Process and Profitability with an influence of 99%. Likewise, when analyzing the variables, a moderate relationship with profitability is observed and is as follows: Digitalization of Processes 0.731 with an influence of 59%, Improvement of the Customer Experience 0.513 and an influence of 62%, Innovation in Business Models 0.714 and an influence of 64% and Optimization of the Value Chain 0.670 and an influence of 64%; so in Digital Transformation Processes it is important in the company to generate 99% Profitability and the dimension that has the most influence is Innovation in Business Models with 64%.

IV. DISCUSSION

In this discussion, we will examine the influence of the digital transformation process on the profitability of a drug distribution company, based on the results obtained and the comparison with relevant studies. This analysis was developed around the main components of the digital process, including the digitalization of processes, customer experience, innovation in business models and the optimization of the value chain. Each component was identified as a key transformation factor and analyzed in relation to the impact on profitability, with a comparative approach that contextualized the results of this research in relation to previous research work. This comparative approach made it possible to observe both the coincidences and divergences with previous studies, providing a comprehensive vision on how digital transformation was able to optimize performance and profitability in pharmaceutical distribution.

Digital Transformation Process and Profitability, in this research, we begin by analyzing the relationship between the digital transformation process and the profitability of the company, evidenced in Table 1. In this sense, the results show that 54% of companies that have a high level of digital transformation also achieve high profitability, while 8% achieve average profitability. These data reflect a significant correlation between the degree of digital transformation and the improvement in profitability, which is consistent with the work of Gallego and Oliva (2022), who

argue that the adoption of technological enablers, such as big data and cloud computing, constitutes a fundamental basis for efficiency in today's industry. This digital transformation approach, known as Industry 4.0, allows not only to modernize processes, but also to increase profitability by reducing costs and optimizing production.

Likewise, Yong Hong (2023) observes that in manufacturing companies, progress in digitalization contributes to improving key indicators, such as inventory turnover and asset profitability. The data from this research in the pharmaceutical sector reflects similar trends, as the increase in digital investment drives efficiency and, ultimately, financial performance. However, it is notable that the data suggest a decrease in initial profitability for those companies that are in the early stages of digitization, which Yong Hong associates with the learning curve and the initial investment that this transformation demands. This observation is particularly relevant for the drug distribution company under study, where a partial implementation could be insufficient to achieve the expected optimal levels of profitability.

The digitalization of processes is another of the components analyzed in this research and is presented in Table 2. Here it can be seen that 47% of companies that have achieved a high level of process digitalization also achieve high profitability, in contrast to 15% that obtain high profitability with a medium level of digitalization. This pattern reinforces the idea that the complete digitalization of internal processes is essential to maximize financial benefits and operational efficiency, as highlighted by Gallego and Oliva (2022), who underline the importance of incorporating advanced technologies to optimize efficiency in Industry 4.0.

In the same vein, Strakova (2022) argues that the digitalization of processes in small and medium-sized enterprises (SMEs) is a basis for their sustainability and competitiveness in an environment of rapid technological transformation. Like the results obtained in this research, Strakova finds that incomplete digitalization generates suboptimal performance, especially in the manufacturing and service sectors. This suggests that, in the context of the drug distribution company, partial digitalization may not be enough to sustain high levels of profitability.

Regarding the Improvement of Customer Experience and Profitability, this represents another essential component for the financial success of a company in digital transformation, and this research shows a direct relationship with profitability (Table 3). Here, 45% of companies with a high focus on improving the customer experience also achieve high profitability.

The results suggest that, for the drug distributor, an effort in the continuous improvement of the customer experience contributes significantly to achieving sustained profitability,

However, the data also reveals that 15% of companies with a medium focus on customer experience achieve high profitability, suggesting that while customer experience is crucial, it does not act in isolation. Therefore, it can be concluded that customer experience must be part of a broader digital strategy to reach the maximum potential for profitability in the pharmaceutical sector.

Innovation in Business Models and Profitability is revealed as another critical factor in the profitability of the drug distribution company, according to the results presented in Table 4. In this case, 54% of companies that integrate a high level of innovation into their business models also achieve high profitability, compared to only 15% that achieve average profitability in this dimension. This underscores the importance of innovating business models, especially in a context as competitive as pharmaceuticals, aligning with what Aguirre (2022) argues, who argues that innovative business processes are essential for the success of digital transformation. Aguirre argues that methodological innovation in business models contributes to the creation of value for customers and, in turn, strengthens companies' revenues.

These findings highlight that digitalization in the field of customs and foreign trade has allowed the development of innovations in information processing that improve efficiency and profitability. In the context of the drug distribution company, an effective adoption of innovations in business models facilitates a more agile and competitive operation, allowing it to capture new market opportunities.

On the other hand, Luo and Yu (2021) suggest that in the pharmaceutical sector, digital transformation is crucial to improve research and development capabilities, reduce costs, and create a sustainable competitive advantage. Their results are consistent with those of this research, as they

indicate that the ability to innovate in business models, specifically in the pharmaceutical industry, has a direct and positive impact on profitability. In addition, Strakova (2022) observes that innovation in business models within SMEs is key to their sustainability and competitiveness, especially in highly regulated and technology-dependent sectors, such as pharmaceuticals.

It is important to note that, although 9% of companies with a medium level of innovation also achieve high profitability, the data in Table 4 suggest that this profitability is less constant than in cases where innovation is high. This supports the perspective of Boggio et al. (2024), who state that digital and innovation skills must be fully integrated to obtain a solid digital business model. In summary, the evidence suggests that in the drug distributor, comprehensive and consistent innovation in business models is essential to maximize profitability and competitiveness in the market.

Analyzing the last dimension, Value Chain Optimization and Profitability, with results indicative of a positive correlation with profitability (Table 5). The data shows that 54% of companies that have optimized their value chain achieve high profitability, while 17% obtain average profitability. These results highlight the relevance of a well-structured and optimized value chain to achieve high levels of efficiency, which translates into higher profit margins.

In addition, the study by Du and Jiang (2022) emphasizes that digital transformation, when implemented at the supply chain level, improves productivity and, therefore, the profitability of companies. This is especially relevant in the context of a drug distribution company, where efficiency in the value chain is crucial for the timely and cost-effective distribution of pharmaceutical products. Du and Jiang's findings reflect that the digitization and optimization of each stage in the value chain contribute to the company's overall performance, a relationship that is reflected in the results obtained.

For their part, Luo and Yu (2021) argue that internal factors, such as organizational structure and technological adoption, play an important role in the effectiveness of the digital transformation of the value chain in the pharmaceutical sector. Research data at the drug distributor suggests that value chain optimization must indeed be done holistically, considering both internal and external processes, to maximize the positive impact on profitability. This observation is also aligned with Trujillo et al. (2022), who highlight the importance of digitalization in Latin America as a means to boost operational efficiency and competitiveness in different sectors.

Finally, the data suggest that 9% of companies with a medium level of optimization in the value chain also achieve high profitability. However, partial optimization is not as effective as a comprehensive strategy that covers all stages of the value chain. For the drug distributor under study, a complete and digitalized optimization of the value chain is therefore an essential strategy to improve profitability and respond to market demands.

The digital transformation in the drug distribution company shows a profound influence on its profitability, as evidenced by the results of this study. The five components analysed – Digital Transformation Process, Process Digitalisation, Customer Experience, Business Model Innovation and Value Chain Optimisation – have demonstrated a significant correlation with the company's financial performance, and their analysis together allows us to understand how each of these factors contributes to maximising profitability in a highly competitive and regulated sector such as pharmaceuticals.

Firstly, the Digital Transformation Process is presented as an essential pillar, being the component with the greatest influence on profitability, with a ratio of 99% according to the statistical analyses in Table 7. This finding coincides with the conclusions of Gallego and Oliva (2022) and Yong Hong (2023), who highlight that comprehensive digitalization, supported by advanced technologies and digital enablers, has a significant impact on business efficiency and profitability. For the distribution company under study, investing in a comprehensive digital transformation not only improves financial indicators, but also optimizes the ability to adapt to a constantly evolving market.

Process Digitalization, the second most important component, allows the drug distribution company to reduce costs and improve operational efficiency, as observed in 47% of companies with high digitalization and high profitability. This reaffirms Strakova's (2022) argument, who points out that the complete digitalization of internal processes is essential to achieve sustainability and

competitiveness in productive sectors. In the context of this research, partial digitalization does not generate the same benefits in terms of profitability, which reinforces the need for comprehensive digital adoption at all levels of the operation.

Customer Experience is also confirmed as a crucial aspect for profitability in the distribution company, as 45% of companies that prioritize improving the customer experience achieve high profitability. This finding is consistent with Rojas et al. (2024), who highlight that customer-centric strategies are key to building loyalty and ensuring sustained revenue. However, the data also suggests that an isolated customer experience strategy may not be enough; It must be part of a comprehensive digital approach that encompasses other aspects of the operation to maximize the impact on profitability.

As for Innovation in Business Models, the results confirm that it is a determining factor, since 54% of companies with high levels of innovation also achieve high profitability. This correlation validates the findings of authors such as Aguirre (2022) and Luo and Yu (2021), who point out that the ability to innovate in the business model is essential to generate a sustainable competitive advantage, especially in the pharmaceutical sector, where technological and market changes require constant adaptation. By adopting innovative business models, the distribution company can respond more effectively to market demands and take advantage of new opportunities to increase its revenues.

Finally, Value Chain Optimization is evident as a fundamental component for profitability, especially in terms of efficiency in distribution and reduction of operating costs. 54% of companies that optimize their value chain achieve high profitability, which is consistent with Du and Jiang (2022), who argue that a digitized and optimized value chain boosts productivity and profitability in the distribution sector. In the case of the drug company, the comprehensive optimization of the value chain would allow greater agility and effectiveness in the delivery of products, key aspects in a sector with high quality requirements and regulatory compliance.

In conclusion, the analysis of this research underscores the importance of a comprehensive digital transformation to improve profitability in the drug distribution company. Each component, from the digitization of processes to the optimization of the value chain, brings specific benefits that, when integrated into a broad digital strategy, strengthen financial performance and position the company in a competitive position. The results are not only consistent with previous studies, but also provide an updated perspective on the influence of digitalization on profitability in the context of the pharmaceutical industry in Trujillo. For the future, it is recommended that the company continue to develop each of these areas with a vision of integration and continuous improvement, consolidating a digital infrastructure that allows it to respond with agility and effectiveness to market demands.

V. CONCLUSIONES

Based on the results found, the following conclusions can be detailed:

- Digital transformation has a significant influence on the company's profitability, with a correlation of 0.756 and an overall influence of 99%; confirming that the digital transformation process is a determining factor for profitability, which implies that its effective implementation can lead to substantial improvements in the company's economic performance.
- The digitalisation of processes has a moderate relationship with profitability (0.731) and an influence of 59%; therefore; Although its impact is considerable, it is less influential compared to other dimensions of digital transformation. This suggests that digitalization is relevant, but it must be complemented by other factors to maximize its effect on profitability.
- The improvement in customer experience shows a correlation of 0.513 and an influence of 62% on profitability; indicating that although the relationship is moderate, the customer experience contributes significantly to economic success, indicating that customer satisfaction and loyalty are important to improve profitability.
- Innovation in business models has a correlation of 0.714 with profitability and an influence of 64%, being the dimension with the greatest impact on profitability, together with the optimization of the value chain; Highlighting their ability to reinvent business models and adapt them to the digital environment is important for the company's economic growth.

- The optimization of the value chain has a ratio of 0.670 and an influence of 64%, which shows that improvements in the supply and distribution chain are decisive to increase profitability; therefore, optimizing these areas would maximize efficiency and reduce costs, which results in a positive impact on profitability.

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