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USE OF MOBILE APPLICATIONS AND CUSTOMER RELATIONSHIP MANAGEMENT (CRM) AS COMPETITIVE STRATEGIES ALIGNED WITH THE THEORY OF DYNAMIC CAPABILITIES

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Abstract

Objective of the Study: To describe the use of a mobile application and Customer Relationship Management (CRM) as competitive strategies, aligned with the dynamic capability's theory, in a food retail company during the COVID-19 pandemic.
Methodology/Approach: A single case study was conducted with a qualitative approach, focusing on a medium-sized food retail company in the São Paulo area. Data was collected through document analysis and semi-structured interviews with key professionals involved in the implementation of the mobile application.
Originality/Relevance: This study provides an insight into digital transformation, which was intensified during the COVID-19 pandemic, with a focus on Small and Medium Enterprises (SMEs) that faced unique challenges.
Main Results: The results showed positive impacts from the implementation of the mobile application, evidenced by a significant increase in sales and the company's market visibility. The effective integration of an e-commerce system with a multi-platform CRM led to increased revenue and the number of customers who transitioned to digital purchases through the company's app and website.
Theoretical/Methodological Contributions: The findings contribute to the literature on digital transformation, CRM, and dynamic capabilities by demonstrating how the integration of these constructs can enhance a company's competitive advantage and adaptation to rapidly changing market environments.

Keywords: digital transformation, Information and Communication Technology (ICT), Customer Relationship Management (CRM), mobile application, dynamic capabilities

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Uso de aplicativo móvel e *Customer Relationship Management* (CRM) como estratégias competitivas alinhadas com a teoria das capacidades dinâmicas

Resumo

Objetivo do estudo: Descrever o uso de um aplicativo móvel e do *Customer Relationship Management* (CRM) como estratégias competitivas, alinhadas à teoria das capacidades dinâmicas, em uma empresa do setor de varejo de alimentos durante a pandemia de COVID-19.
Metodologia/abordagem: Foi realizado um estudo de caso único, com abordagem qualitativa, em uma empresa de médio porte no setor de varejo de alimentos na Grande São Paulo (SP). Os dados foram coletados por meio de análise documental e entrevistas semi-estruturadas com profissionais-chave envolvidos na implementação do aplicativo móvel.
Originalidade/Relevância: Apresenta-se uma abordagem sobre transformação digital, intensificada durante a pandemia do COVID-19, com foco nas Pequenas e Médias Empresas (PMEs) que enfrentaram desafios únicos.
Principais resultados: Os resultados demonstraram impactos positivos da implementação do aplicativo, evidenciados por um aumento significativo nas vendas e na visibilidade da empresa no mercado. A integração eficaz de um sistema de *e-commerce* com um CRM multiplataforma resultou em um aumento no faturamento e no número de clientes que migraram para compras digitais por meio do aplicativo e do site da empresa.
Contribuições teóricas/metodológicas: Os resultados contribuíram para a literatura das áreas de transformação digital, CRM e capacidades dinâmicas, apresentando como a integração entre esses constructos pode favorecer a vantagem competitiva da empresa e a adaptação a ambientes de mercado em rápida mudança.

Palavras-chaves: transformação digital, Tecnologia da Informação e Comunicação (TIC), *Customer Relationship Management* (CRM), aplicativo móvel, capacidades dinâmicas

Uso de aplicaciones móviles y *Customer Relationship Management* (CRM) como estrategias competitivas alineadas con la teoría de las capacidades dinámicas

Resumén

Objetivo del estudio: Describir el uso de una aplicación móvil y el *Customer Relationship Management* (CRM) como estrategias competitivas, alineadas con la teoría de las capacidades dinámicas, en una empresa del sector de retail de alimentos durante la pandemia de COVID-19.
Metodología/enfoque: Se realizó un estudio de caso único, con un enfoque cualitativo, en una empresa de tamaño mediano en el sector de retail de alimentos de São Paulo (SP). Los datos se recolectaron mediante análisis documental y entrevistas semiestructuradas con profesionales clave involucrados en la implementación de la aplicación móvil.
Originalidad/Relevancia: Se presenta un enfoque sobre la transformación digital, intensificada durante la pandemia de COVID-19, con enfoque en las Pequeñas y Medianas Empresas (PYME's) que enfrentaron desafíos únicos.
Principales resultados: Los resultados demostraron impactos positivos de la implementación de la aplicación, evidenciados por un aumento significativo en las ventas y en la visibilidad de la empresa en el mercado. La integración eficaz de un sistema de *e-commerce* con un CRM multiplataforma resultó en un aumento en la facturación y en el número de clientes que migraron a compras digitales a través de la aplicación y el sitio web de la empresa.

Contribuciones teóricas/metodológicas: Los resultados contribuyeron con la literatura en las áreas de transformación digital, CRM y capacidades dinámicas, mostrando cómo la integración entre estos constructos puede favorecer la ventaja competitiva de la empresa y la adaptación a entornos de mercado en rápida evolución.

Palabras clave: transformación digital, Tecnología de la Información y Comunicación (TIC), *Customer Relationship Management* (CRM), aplicativo móvil, capacidades dinámicas

1 Introduction

In recent decades, the digitalization of operations, products and services has been a growing trend in companies, intensified during the COVID-19 crisis, with mobile applications enhancing business efficiency (Rakshit, Islam, Mondal & Paul, 2021). This digitalization process is crucial for companies to quickly adapt to digital trends and maintain competitiveness (Kostin, 2018). The COVID-19 pandemic has had an uneven impact, particularly affecting Small and Medium Enterprises (SMEs), which face difficulties in capitalizing on emerging opportunities during crises (Belitski, Guenther & Kritikos, 2022). COVID-19 severely impacted SMEs, reducing revenues and operations due to decreased demand, staff shortages, and supply chain disruptions. However, these institutions represent a significant portion of employment. Therefore, it is imperative to examine the impacts of COVID-19 on these companies and their responses to the crisis (Isabelle, Han & Westerlund, 2022).

Organizational responses to crises vary depending on strategic and environmental factors. To overcome these adversities, organizations must enhance their Information Systems (IS) capabilities, drawing on the resource-based view and dynamic capabilities theory (Al-Matari, Amiruddin & Al-Sharafi, 2022). There has even been a shift in how employees update the Customer Relationship Management (CRM) tool in their companies in real-time, so that performance can be improved and they can remain competitive (Chatterjee, Chaudhuri, Vrontis & Jabeen, 2022).

With the prediction that 95% of purchases will be online by 2040, mobile applications have become an important strategy, especially in retail e-commerce, offering advantages such as attractive prices, convenience, and personalized service (Ali, Khalid, Javed & Islam, 2021). In the post-pandemic recovery, SMEs are adopting mobile applications as crucial tools to overcome challenges and uncertainties, driving business expansion and improving cooperation with customers and suppliers (Rakshit et al., 2021). In this context, the dynamic capabilities

theory represents an alternative approach that seeks to elucidate the process by which organizations can not only achieve but also sustain competitive advantages in environments characterized by constant change and dynamism (Teece, Pisano & Shuen, 1997).

Although the use of business applications is growing, research on their adoption by SMEs is still inconsistent, especially regarding applications focused on food commerce (Ribeiro, 2019). Therefore, this study aims to describe the use of a mobile application and CRM as competitive strategies, aligned with the dynamic capabilities theory, in a company in the food retail sector during the COVID-19 pandemic.

2 Theoretical Framework

The theoretical framework of this study provides an analysis of key concepts related to the use of Information and Communication Technologies (ICT), with a special focus on mobile applications. The importance of the quality of these applications will be explored, considering aspects such as usability, functionality, and reliability, which are crucial for success in today's competitive market. Additionally, this section discusses competitive strategies based on innovation, emphasizing how companies can utilize technological innovation to differentiate themselves and achieve competitive advantage in their markets. The analysis extends to the dynamic capabilities theory, which explores how organizations can develop, configure, and reconfigure internal and external resources to effectively respond to rapidly changing business environments.

2.1 Information Technology and mobile applications

Information and Communication Technology has been fundamental in transforming businesses, especially in the app market, which could reach approximately $10.1 trillion by 2023, according to Tian, Lin, Guo, Zhao, and Jing (2022). The online food delivery sector, highlighted by Nooteboom and Bart (2006), exemplifies this growth, driven by consumer convenience.

The Online Food Delivery (OFD) market is significantly expanding in retail e-commerce. According to Ribeiro (2019), the preference for online services is influenced by delivery speed, order accuracy, platform ease of use, as well as the variety of options and the convenience of receiving food at home. This increase reflects a shift in consumer behavior, increasingly oriented towards efficient and convenient technological solutions. Currently, there are essentially two predominant models of online food ordering platforms, as outlined by

Ribeiro (2019). The "aggregator" model adopts a traditional approach, where establishments are responsible for delivery, establishing a direct connection with the customer and preserving the authenticity of the traditional service. In contrast, the second model is embodied by the more recent food delivery apps, known as marketplaces (such as Ifood, Rappi, Uber Eats, among others), which fully assume the responsibility for delivery.

Marketplaces, unlike aggregators, typically charge fees to both partner restaurants and consumers, incorporating an additional element of convenience and efficiency in delivery logistics (Ribeiro, 2019). This new paradigm reflects a significant evolution in the food delivery market, highlighting the importance of technology and innovation in the food service industry. However, the focus of this study is on a more traditional mobile application, developed and customized specifically for a particular company. This application stands out by offering a unique experience, integrating the specific information and characteristics of the business, and providing consumers with a personalized interface that reflects the company's identity and values. The choice of this application model illustrates a targeted and tailored approach to customer engagement, highlighting how technological solutions can be adapted to meet the specific needs of different types of businesses in the food sector.

2.2 Quality of the Mobile Application

The quality of mobile applications is crucial for the efficiency of services, reputation, and financial stability of companies. According to Holl and Elberzhager (2019), application failures can cause damage to corporate image and financial losses. The authors highlight that "Capgemini," a renowned multinational consulting, technology, professional services, and outsourcing company, underscores the importance of quality in information technology solutions. They emphasize that failures in this domain are readily identified by users, directly impacting customer satisfaction. The study by Holl and Elberzhager (2019) demonstrates that the majority of users abandon an application after one or two unsuccessful attempts, highlighting the low tolerance for failures. Only 16% persist in trying more than twice, underscoring the imminent demand for high standards of quality and performance in mobile applications. A rigorous process of testing and continuous improvement is essential to ensure a reliable and satisfactory user experience from the first use.

Furthermore, Inukollu, Keshamoni, Rocha, Kang, and Inukollu (2014) point to an increase in low-quality mobile applications, often due to the lack of a standardized development lifecycle, resulting in applications that do not meet performance and reliability expectations.

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The authors' research involved over 500 American users and revealed that 98% consider application performance as their primary concern, emphasizing the importance of meeting user expectations to avoid rejection.

Table 1 from the study by Inukollu et al. (2014) compiles and categorizes the main failures found in mobile applications, as well as the consequences of these failures on overall performance. Among the most common failures are issues related to stability, security, and usability, which can lead to a range of negative effects, from user frustration to more serious issues such as the exposure of confidential data.

This scenario demonstrates the need for a greater focus on quality and rigorous testing of mobile applications throughout all phases of their development. Ensuring that applications are reliable, secure, and easy to use is fundamental for their acceptance and success in today's highly competitive market. Additionally, attention to the quality and performance of applications can have a significant impact on user retention, brand reputation, and consequently, the financial results of the companies involved, whether in the sale or acquisition/implementation of the application.

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Table 1

Main Failures in Applications and Consequences of Poor Performance

Faults			Consequences of poor performance		
Application or system crashes	→	76%	Immediate deletion of the App	→	44%
Application/system failures	→	71%	Deletion of the App if it froze for more than 30 seconds (32% would make negative word of mouth, the negative experience, 21% would post information about the negative experience on virtual social networks)	→	38%
Slow response	→	59%	Exclusion if frozen for 5 seconds	→	18%
High battery consumption	→	55%	They would keep the App a little longer, despite poor performance	→	27%
Considerable amount of advertisements and promotions	→	53%	Users prefer not to purchase (in the future) the company's App due to low performance	→	100%

Note. Source. Adapted from "Factors Influencing Quality of Mobile Apps: Role of Mobile App Development Life Cycle" by Inukollu et al. (2014).

The choice of a mobile application that has already been tested and established in the market, as presented in Table 1, reflects a strategic approach that goes beyond merely reducing technical risks. Such a decision allows companies to redirect their resources and attention towards enhancing content and developing more effective sales strategies, aligning with market demand and consumer expectations.

By opting for proven applications, companies also benefit from previous user feedback and reviews, which facilitate the adaptation and customization of the application to the specific needs of their target audience. A customer-oriented approach is fundamental in today's highly competitive market, which is intensely focused on user experience (Inukollu et al., 2014).

Furthermore, adopting an existing application accelerates the company's entry into the digital market, a critical aspect in an environment where the speed of implementing technological solutions can be a significant competitive advantage. This strategy also contributes to building brand reputation and gaining consumer trust, benefiting from the already established reliability of the product (Setia, Venkatesh & Joglekar, 2013).

Integrating these considerations with the theory of dynamic capabilities, it becomes evident that the choice of a market-tested and approved mobile application reflects a company's

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ability to quickly adapt to changes in the business environment. This theory emphasizes the importance of developing, reconfiguring, and renewing organizational resources to effectively respond to rapidly changing business environments. By focusing on content enhancement and the development of sales strategies, rather than worrying about the technical development of a new application, companies demonstrate their ability to adapt and reallocate resources in an agile and efficient manner, essential characteristics for sustaining competitive advantage in a dynamic and technology-driven market (Teece, Pisano & Shuen, 1997).

2.3 Use of Customer Relationship Management – CRM for online sales

Customer Relationship Management (CRM) is a critical component in the success of online sales, especially in the context of mobile applications. Authors such as Payne and Frow (2005), Chaffey and Smith (2022), and Nuseir and Refae (2022) provide valuable insights on how CRM can be optimized to improve online sales.

Payne and Frow (2005) highlight the importance of CRM as a strategic approach that integrates business processes and technology to build lasting relationships with customers. They emphasize that effective CRM is not limited to managing customer data but involves creating a personalized experience that aligns product or service offerings with customer needs and preferences. In the context of an online sales application, this means using collected data to provide personalized recommendations, targeted promotions, and an optimized purchasing journey.

Chaffey and Smith (2022) explore how successfully implemented CRM transforms the interaction between company and customer. They argue that efficient CRM allows companies to better understand their customers by tracking their online interactions and behaviors. This is particularly useful in mobile applications, as every tap and swipe provides insights into consumer preferences. These data can be used to enhance the user experience, increase customer retention, and consequently boost sales.

Greenberg (2010a) addresses the need for robust and secure CRM technology, especially in mobile applications used for online sales. He highlights that the quality of the CRM platform is crucial to maintaining customer trust and avoiding failures that could result in financial losses or damage to reputation. A well-developed CRM platform in an online sales application must ensure the security of customer data while offering an intuitive and efficient interface (Greenberg, 2010b).

In short, the insights of Payne and Frow (2005); Chaffey and Smith (2022); Nuseir and Refae (2022), and Greenberg (2010a) collectively highlight the importance of a well-implemented CRM in online sales applications. The success of these applications depends not only on secure and reliable CRM technology, but also on a strategy that prioritizes personalization, consumer understanding and continuous optimization of the user experience. The integration of these elements is crucial to boost sales, improve customer retention and maintain a competitive advantage in the digital market.

2.4 Competitive strategy linked to innovation

The development of a competitive strategy is a process that involves defining how a company intends to compete, what objectives it aims to achieve and what methods and actions will be used to achieve these objectives. This approach encompasses a combination of desired goals and the means by which the company plans to achieve them, as highlighted by Pádraig (2017). Furthermore, the importance of internal and external sources of learning is emphasized, as both complement each other and can be important precursors to innovation and business performance, as indicated by Salunke, Weerawardena and McColl- Kennedy (2019).

Innovation can be understood through two main perspectives, Demarcation and Synthesis, as described by Smania and Mendes (2020). From a Demarcation perspective, innovation is seen in a segmented way, with products and services treated as distinct categories. This approach focuses especially on introducing new services or improving existing services. An example of this perspective is the implementation of a mobile application, which represents both a new sales service and an improvement in the existing business process. In contrast, the Synthesis perspective approaches innovation in an integrated manner, considering that it simultaneously encompasses both products and services. This vision recognizes that innovation in products and services often overlaps and interacts, forming a continuous and interconnected process of development and improvement..

In this sense, the introduction of the mobile application discussed in this article constitutes a significant strategic innovation for the company in focus, operating in the supermarket sector in the Greater São Paulo region. This aspect is complemented by the study carried out by Wang, Kim, Holguín-Veras and Schmid (2021), which explored how different users adopt online sales applications. Analyzing the behavior of 915 United States residents.

The authors identified four distinct consumer profiles: (1) consumers who already used the service before the crisis (previous adopters), (2) those who started using it temporarily during the crisis (new temporary adopters). rios), (3) those who started using the service during

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the crisis and continued after (new permanent adopters) and (4) those who did not adopt the service at any time (non-adopters). This classification, detailed in Table 2 of the study, offers valuable insights into the adoption patterns of online sales technologies in different contexts, especially in times of crisis.

Table 2

Participation of each type of consumer adopter (N = 915)

Type of adopter	Market	Food	Household Goods	Others
Previous adopter	19,2%	51,9%	28,4%	81,5%
New temporary adopter	12,1%	2,9%	10,4%	0,3%
New permanent adopter	9,7%	5,2%	9,9%	3,0%
Non-adopter	59,1%	39,9%	51,3%	15,3%

Note. Source: adapted from "Adoption of delivery services in light of the COVID pandemic: Who and how long?" by Wang et al., 2021, p. 270-286.

The analysis of Table 2, as described by Wang et al. (2021), allows us to understand the adoption profile of online sales applications among different types of consumers. The table presents the percentage share of each type of consumer adopter in four product categories: market, food, household goods and others.

The results reveal significant differences between the four types of adopters identified: previous adopters, new temporary adopters, new permanent adopters and non-adopters. Notably, the 'Non-adopter' category has the highest percentage, with 59.1% in the market, 39.9% in food, 51.3% in household goods and 15.3- 37- in others.

These data suggest that a considerable proportion of consumers have not yet adopted online sales mobile application services, indicating a significant potential market to be explored. The unequal distribution of percentages between different product categories also reflects varying consumer preferences and potential market opportunities specific to each type of product..

The models by Wang et al. (2021) indicate that the factors that influence initial adoption and continuation intention differ from the patterns observed in previous studies carried out before the pandemic. This change in adoption patterns highlights the need for marketing and business strategies adapted to the new realities of consumer behavior in the post-pandemic context.

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2.5 Dynamic capabilities

The theory of dynamic capabilities is a fundamental concept in the study of strategic management, especially in contexts of rapid technological change. According to Teece, David, Pisano, and Shuen (1997), this theory addresses how companies can create and capture value, asserting that competitive advantage depends on a company's ability to adapt and respond to market changes. Dynamic capabilities are essential for improving internal processes, both technological and organizational, as well as managerial.

Eisenhardt and Martin (2000) focus on the idea that dynamic capabilities are firm-specific routines, such as product development and strategic alliances, which are critical in volatile market environments. Zollo and Winter (2002), in turn, emphasize the importance of knowledge accumulation and learning as fundamental bases for the development of dynamic capabilities.

The recognition and rapid capitalization of emerging opportunities are fundamental for value creation, as pointed out by Teece et al. (1997). This implies that constant innovation and adaptability are more vital for long-term success than strategies that focus solely on destabilizing competitors.

The theory highlights four main aspects that influence a company's competitiveness: innovation, flexibility, loyalty, and alliances. When combined, these elements allow the company not only to create but also to extend or modify its resource base effectively.

According to Salunke et al. (2019), the combination and reconfiguration of resources enable organizations to adjust their strategies to solve problems in new and innovative ways, anticipating future changes. The ability to integrate new knowledge, whether internal or external, and apply it to provide solutions that meet customer needs is the essence of dynamic capabilities, which are at the core of innovation-oriented competitive strategies..

3 Technical Production Method

The present study is characterized as a single case study, following the methodological approach proposed by Yin (2014), which allows an in-depth and contextualized investigation of a contemporary phenomenon within its real-life environment.. The case study research strategy adopted a qualitative approach, combining secondary data through document analysis and primary data derived from semi-structured interviews with key professionals involved in the implementation of the mobile application.

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Document analysis, as described by Bowen (2009), is a form of qualitative research in which documents are interpreted to extract meanings relevant to the topic studied. The documents analyzed included internal company records, application implementation reports and relevant communications.

The semi-structured interviews, based on the guidelines of DiCicco-Bloom and Crabtree (2006), aimed to explore the experiences and perceptions of those involved in the implementation process. The head of the Information Technology (IT) department and an experienced consultant from the marketing and legal departments were interviewed, both with a central role in the process. These interviews provided insights into the motivations, challenges and perceived results of implementing the application.

The study explored the initial proposal for the implementation of the application as a pre-pandemic marketing strategy, its acceleration due to the impact of social isolation policies, and the subsequent development and implementation process. Preliminary research by the IT, marketing, and legal teams included evaluating the feasibility of developing an in-house system or acquiring an existing solution. A technical visit was conducted to a similar establishment that was already using a similar resource to analyze the requirements and processes for implementing the application. This step was crucial in deciding to use a customizable white-label solution, which facilitated the integration of the online channel with the existing physical operation. This technological article was structured according to the main stages indicated by Biancolino et al. (2012).

4 Project Context

In this article, the case of a medium-sized company in the food retail sector in Greater São Paulo is explored. The company, with a history of innovation and adaptation, faced unique challenges during the pandemic, leading to the strategic decision to implement a white-label solution for online sales. The choice of this solution aimed not only to maintain market competitiveness but also to expand its reach in an increasingly digitalized retail environment.

The chosen solution, a white-label e-commerce platform, allowed for customization to reflect the brand and specific needs of the company while offering effective integration with its existing systems.

The intervention consisted of implementing this platform as a new sales channel, complementing the company's physical operations. This action was accompanied by training and capacity-building mechanisms for employees, adjustments in logistical processes, and a

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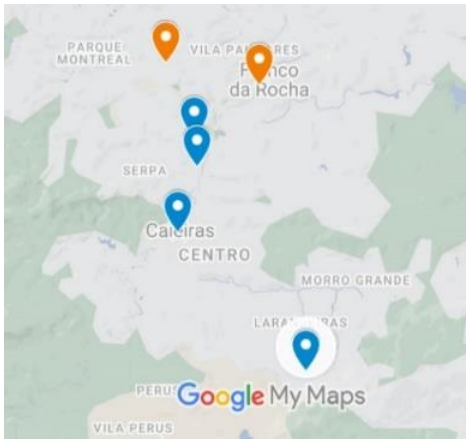
digital marketing strategy to promote the new platform. The implementation was designed to be scalable, ensuring that the solution could grow and adapt to the company's future needs. The adopted approach demonstrates how technological solutions can be efficiently integrated into existing business operations, providing a response to emerging market challenges and opening pathways for new growth and innovation opportunities.

4.1 Characterization of the organization

The organization that is the subject of this technological article is a Brazilian company governed by private law - referred to in this study as Empresa Alpha - which operates in the general merchandise retail sector, with an emphasis on food products. In 2020, when the research began, the company had 3 units with around 50 employees and was classified as a medium-sized company according to (Yearbook of work in micro and small companies, 2013), however At the end of 2021, the organization began to be considered a large company, as it formed an economic group made up of six units with more than 100 employees and revenues exceeding R$50,000,000, 00 year. Figure 1 illustrates the geographical location of Alpha Company Units.

Figure 1

Physical store units



- Caieiras/SP
- Franco da Rocha/SP

Figure 1 presents the geographical distribution of Alpha Company's units in the cities of Caieiras - SP and Franco da Rocha - SP, with a focus on classes C and D. The strategic location of these units in densely populated areas plays a fundamental role in the company's

expansion plan, as the geographical concentration of the units optimizes the management of store supply logistics and the efficiency of product deliveries to customers.

Notably, according to a survey conducted by FGVcia in 2021, even amid the adversities caused by the COVID-19 pandemic and the complexities of the economic scenario, approximately 41% of Brazilians belonging to classes C and D opted to acquire a new smartphone in 2020, while 47% of those who had not yet done so expressed the intention to do so in 2021 (Meirelles, 2021). There are a total of 464 million digital devices, including computers, notebooks, tablets, and smartphones, in corporate or domestic use, with smartphones standing out for dominating various uses, such as in banking institutions, shopping, and social media, with more than 2 devices per inhabitant in May 2023 (Meirelles, 2023).

These data highlight the sound strategy of Alpha Company in adopting a white-label solution for online sales, providing an additional shopping channel for consumers who preferred to avoid in-person shopping in physical stores due to concerns about COVID-19 contamination

4.1 Characteristics of the mobile application deployed in the company

The mobile application implemented by the company was designed based on the white label platform, a market concept that involves outsourcing the development of products and services, as opposed to the private label model (own brand).. This approach creates a versatile template that can be customized and redistributed according to the company's needs (Leisenberg & Vartmann, 2014). Generally, companies turn to this technology (white label) when they want to expand their operations, but lack the necessary expertise to develop a solution internally. As a result, this platform allows the company to acquire a ready-made and proven technological solution, without the need to invest significant efforts or financial resources in developing a system from scratch..

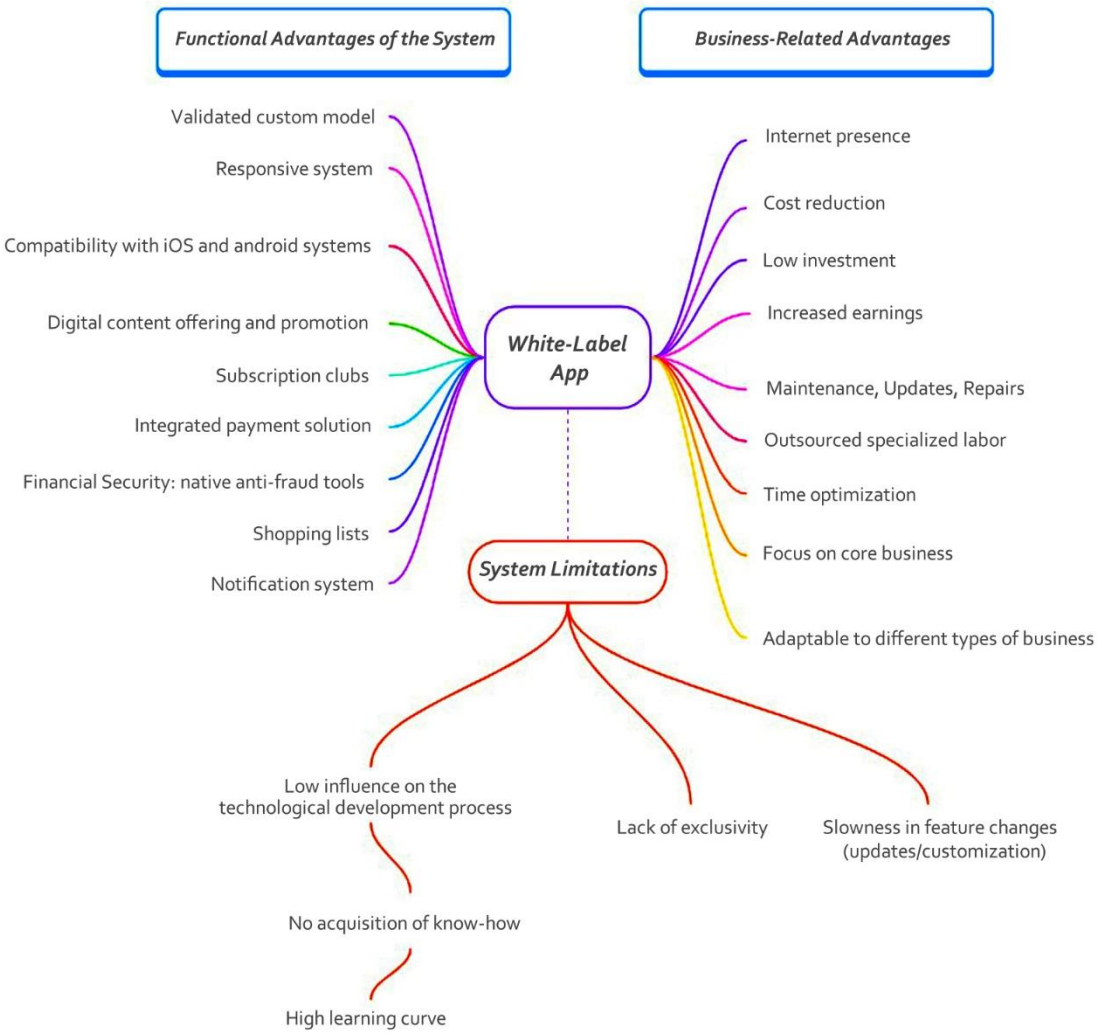
In this sense, when choosing a white-label application for an online sales operation, quality and capacity for continuous development are essential criteria. As indicated by Holl and Elberzhager (2019), even with rigorous quality testing, users may encounter previously unidentified problems. Therefore, it is crucial that the chosen application offers flexibility for continuous updates and improvements, ensuring a consistent and reliable user experience..

The white label platform was adapted to meet the specificities of the food retail sector, offering support in multiple formats, including desktop, tablet and cell phone (Leisenberg, 2016). The possibility of customization makes it possible, on the one hand, to represent the

company's identity and, on the other, to create a customized experience for customers (Leisenberg & Vartmann, 2014). As for the characteristics of the mobile application implemented in the company that is the subject of this technological article, it stands out for being an intuitive navigation structure, designed to effectively direct customers to the desired content, promoting sales in an agile manner. Figure 2 presents a structured mind map that highlights the functional advantages, business-related advantages and limitations of the system:

Figure 2

Mind map of business-related advantages, functional advantages and limitations



Source: authors based on research data and Leisenberg & Vartmann (2014); Holl & Elberzhager (2019).

Figure 2 was prepared based on the reported implementation experience, data collection through interviews carried out with the head of the Information Technology (IT) department

and the marketing department consultant and legal, as well as in the literature that constitutes the theoretical framework of this study. In this sense, the functional advantages of the system include: the customization of the application (white label), its responsiveness, compatibility with iOS and Android systems, the ability to offer and disseminate digital content, a subscription club that provides offers exclusive to registered users, integrated payments solution, financial security reinforced with native anti-fraud tools, shopping list functionality and an integrated notification system. On the other hand, the advantages related to the business include internet presence, reduced development costs, low initial investment, increased revenue (sales), maintenance, updates and easier repairs., specialized outsourced labor, time optimization and a flexible approach adaptable to different types of business (Leisenberg & Vartmann 2014; Leisenberg 2016).

However, there are also limitations in the white label system, including a reduced influence on the technological development process, the lack of acquisition of specialized knowledge in the area of Information Technology (IT.), a steep learning curve, lack of exclusivity and slow changes that are specific to the business, such as customization or specific demands. It is important to highlight that, regarding the limitations of the system, the supplier company acts as a partner via a support service contract by providing continuous technical support, which will be discussed in detail in the following paragraphs (Leisenberg & Vartmann 2014; Leisenberg 2016).

The company providing the mobile application is a startup whose main objective is to help small retail businesses, especially in the food sector, to create their own virtual stores.

Operating an e-commerce requires its own infrastructure, logistics adapted to the new business format and, especially in the case of food commerce, specific care. That said, the owner of the company that is the subject of this study chose to hire the services of a company specialized in digital transformation. In the entrepreneur's view, especially in this period of recovery after the intense challenges of the pandemic crisis, without the support of the startup developing the solution and the effectiveness of the system in offering quick solutions, there would not have been been possible to acquire the necessary expertise. This would result in a possible failure of the pioneering project in the region.

5 Type of Intervention and Mechanisms Adopted

The intervention described in this technological article was conducted through a structured process, as detailed in Table 3. This intervention involved the implementation of the

application, being coordinated and guided with technical support. technician from the company that developed the system. The process lasted approximately 30 days and began with the prototyping and testing phase, which plays a fundamental role in evaluating the quality and performance of the application, as highlighted by Inukollu et al. (2014).

The subsequent steps, which included customization, product registration and promotion, were carried out carefully to avoid common application problems and the consequences of poor performance, as discussed by Holl and Elberzhager (2019). For a more in-depth understanding of these issues, you can consult Table 1 - Main Application Failures and Consequences of Low Performance.

It is important to highlight that the implementation of this application followed a rigorous process to guarantee the effectiveness of the system, with an emphasis on preventing problems and optimizing performance, reflecting the company's commitment to offer a high quality solution to its customers. Table 3 describes the application deployment steps. The results were obtained through data from documentary analysis of interviews carried out.

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Table 3

Implementation steps App white label

Action	Criteria analyzed	Decision making	Notes
Technical visit	Order control and separation,	Favorable	Carried out by current team of employees
	Delivery/return logistics,	Favorable	Carried out by current team of employees
	Billing without needing to occupy a POS,	Favorable	There were no inconsistencies
	Integrated platform - virtual stock/physical store,	Favorable	Compatible
	Diversified payment methods,	Favorable	Opportunity link with Database of preferred customers "Mascote Clube Loyalty System"
Planning the costs of the delivery operation	Das necessidades de complementar a frota atual	Favorable	Desnecessário
System structuring "customer-withdraw".	Structure, number of employees involved.	Favorable	Service on demand/empathy-social isolation
Training planning	Procedures, materials, deadlines.	Favorable	Changing routines, Intuitive system, dynamics similar to routine practice
Customizing the APP	Customized white label prototype for testing.	-	Definition of products to be included on the platform
Tests	Funcionalidades, consistência de estoque, segurança e estabilidade.	Favorável	Use of current online and offline advertising channels.
Launch	Planning/costs.	Favorable	
Reorganization of the purchase limit	**Infrastructure analysis and calculation according to demand and supported capacity.**	**Work with time clusters: maximum 20 purchases per period.**	**Considered the work team and general service capacity.**

Note. **Source:** authors, based on research data.

In Table 3, by integrating the observations of Holl and Elberzhager (2019) with those of Leisenberg and Vartmann (2014), a more comprehensive understanding of the advantages of white label applications was obtained, as illustrated in the table of implementation steps §tion. Holl and Elberzhager (2019) highlight the importance of adaptability and continuous innovation in digital business models, characteristics that are fundamental in the context of white label applications and emphasize that adaptability is essential to respond to the s rapid changes in the digital business environment. This is reflected in the "Planning the costs of the delivery operation" and "Structuring the customer-collection system" stages of the table. These steps demonstrate how the white label application can be adapted to meet specific operational requirements, enabling a quick and effective response to market needs.

Furthermore, Holl and Elberzhager (2019) emphasize the importance of continuous innovation to maintain relevance in the digital market. This is evidenced in the "APP Personalization" stage, in which the white label model allows for frequent and efficient innovations and customizations, keeping the application up to date with the latest trends and consumer expectations. The "Testing" stage in Table 3 is also aligned with the ideas of Holl and Elberzhager (2019) about the need for agile and interactive development. They argue that a rapid cycle of feedback and improvement is crucial in a digital environment. White label applications facilitate this process, allowing quick adjustments based on real feedback, which is essential for the success of any digital solution..

Finally, the "Purchase Limit Reorganization", as described in Table 3, exemplifies the need for scalability and flexibility in operations as a fundamental principle as digital platforms must be able to adapt and scale according to the evolution of business and market demands (Holl & Elberzhager, 2019).

In summary, the analysis of the implementation stages of the white label application, considering the perspectives of Leisenberg and Vartmann (2014) and Holl and Elberzhager (2019), highlights how this model aligns with the precepts of adaptability, continuous innovation, agile development and scalability. These characteristics are fundamental for companies seeking to prosper in the current and dynamic digital business scenario.

After launching its mobile application, the company needed to adapt to the General Data Protection Law (LGPD), Law no. 13,709/2018, which regulates the processing of personal data, including digital data, and was updated in 2020. The law aims to protect the freedom and privacy of individuals. In response, the company established a committee dedicated to LGPD to ensure the application's compliance with standards, thus demonstrating its commitment to the security and privacy of user data. The creation of this committee not only illustrates the

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company's proactive approach to protecting customer rights, but also highlights its commitment to preserving trust in the digital practices adopted.

6 Results Obtained and Analysis

The implementation of a customized mobile application for online sales by Alpha Company represents an innovative competitive strategy, with positive results reflected in increased sales and greater market visibility. This success was amplified by the integration of an efficient e-commerce system with a multi-platform CRM, optimizing the management of contacts and data for marketing and commercial transactions.

Payne and Frow (2005) and Chaffey and Smith (2022) emphasize the significant relevance of an efficient CRM in harmonizing marketing and sales strategies. They also highlight the crucial role of technology in enhancing customer relationships and personalizing services. Greenberg (2010a) complements this view by emphasizing the role of CRM in building a lasting and valuable relationship with customers, which is evident in the positive consumer response to the application.

After adopting the multi-platform system (website and application), Alpha Company identified an average increase of 17% in revenue and 9.4% in the number of customers making purchases through digital means. In 2022, the company found that interactions and adherence to online shopping continued to grow. These results also involved an increase in the average ticket of purchases made through the app. Therefore, Alpha Company began to cater to a new customer profile, with greater purchasing power and demand for imported products. The modern customer, who emerged during the COVID-19 pandemic, became a recurring customer, classified as a "new permanent adopter" by Wang et al. (2021), allowing Alpha Company to continue investing in new technologies. This approach makes it more capable of meeting the emerging demands of current times and taking advantage of technological advancements.

In this sense, the implementation of the application, an initiative aligned with the theory of dynamic capabilities, demonstrates Alpha Company's ability to quickly adapt to market changes and customer needs. This aspect resonates with the ideas of Teece et al. (1997), who emphasize the importance of developing and utilizing dynamic capabilities to maintain a sustainable competitive advantage in volatile markets.

The pandemic intensified the urgency for digital solutions, and the company demonstrated an effective response to this demand, as highlighted by Wang et al. (2021). By opting for a system from a specialized startup, the company ensured quality and security,

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aligning with the guidelines of Holl and Elberzhager (2019), who emphasize the importance of preventing failures that could impact reputation and result in financial losses.

In summary, the strategy adopted by Alpha Company in implementing the online sales application represents a concrete example of the application of CRM and dynamic capabilities theories. This initiative not only responded to the urgencies of the pandemic crisis but also generated a lasting transformation in consumer purchasing preferences, highlighting the importance of digital innovation, customer empathy, and a commitment to quality and security.

7 Conclusion

This study illustrated the successful implementation of a white-label mobile application by Alpha Company for online sales in the food sector during the COVID-19 pandemic. This strategic decision was a significant step, reflecting the growing trend of digitalization in companies, as highlighted by Kostin (2017) and Meirelles (2021), and demonstrating an effective application of the theory of dynamic capabilities (Salunke et al., 2019).

By adopting the solution, Alpha Company was able to expand its operations, leveraging technology without the need for internal development, a strategic move that enhanced its competitive advantage over market competitors. In this context, Alpha observed a 17% increase in revenue and a 9.4% increase in the number of customers who began purchasing through the company's app and website. Additionally, this strategy enabled the identification of customer profiles and preferences, particularly for differentiated products with higher added value, which increased the average ticket size. Thus, Alpha Company began to serve a new customer profile with greater purchasing power. This new customer profile, which made online purchases during the COVID-19 pandemic, became a regular customer, aligning with the principles of Wang et al. (2021).

It is worth noting that the integration of an efficient e-commerce system with a multi-platform CRM was essential for optimizing contact and data management, an aspect highlighted by Payne and Frow (2005) and Chaffey and Smith (2022). The choice of a robust and secure CRM, emphasized by Greenberg (2010a), ensured customer trust and prevented financial losses or reputational damage. This CRM system allowed Alpha Company to personalize the customer experience, understand their preferences and behaviors, improve customer retention, boost sales, and strengthen consumer relationships.

The dynamic capability (Belitski et al., 2022) demonstrated by Alpha Company in quickly implementing the white-label app solution in response to the COVID-19 crisis reflects

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the company's ability to adapt and evolve in a rapidly changing business environment. The strategic decision not only met immediate needs during the pandemic but also positioned the company for sustainable growth in the future.

Thus, this practical case of Alpha Company highlights the importance of innovation, adaptability, and the integration of CRM technologies as crucial elements for success in today's competitive digital market. It is pertinent to mention the research limitation of this report, which focused on a large company in the retail sector with an emphasis on food products, referring to a context of health and epidemiological crisis. Future research could deepen the understanding of how other companies of different sizes and sectors can apply similar strategies to achieve competitive advantages in different contexts.

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