Revista de Administração Contemporânea
Journal of Contemporary Administration

ASSOCIAÇÃO NACIONAL DE PÓS-GRADUAÇÃO E PESQUISA EM ADMINISTRAÇÃO

e-ISSN: 1982-7849

Theoretical-empirical Article

The Impact of IT-Business Strategic Alignment on The Transformation and Operations of Pre-Digital Businesses

Influência do Alinhamento Estratégico TI-Negócio na Transformação e Sustentação do Negócio Pré-Digital

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ABSTRACT

Objective: this study aims to answer the following research question: How does IT-business strategic alignment (ITBSA) influence the sustaining or transformation of a pre-digital business? This objective was defined due to the critical importance of this topic for executives responsible for keeping such businesses adaptive and competitive in the face of the digital era's opportunities and threats. **Theoretical approach:** the theoretical background of this article is formed by pre-digital and digital business models, IT-business strategic alignment, focusing on IT-enabled business support, IT-enabled business transformation, digital optimization, and digital transformation. **Method:** following the development of a research model and propositions, a case study was conducted using semi-structured interviews with executives from a multinational industrial company. These interviews were transcribed, coded, and analyzed using a deductive data collection and analysis protocol, supported by NVivo software. **Results:** the presence of organizational silos and the absence of a digital strategy were identified as key issues that have impacted the transformation of the pre-digital business studied. These challenges were mapped not only through case study analysis but also by triangulating these findings with the existing literature. **Conclusion:** despite the integration of an emerging digital strategy into ITBSA, traditional practices can still be helpful to mitigate the identified issues of strategic misalignment and organizational silos. For instance, executives need to maintain a balanced focus on both intellectual and social alignments to ensure that IT, business, and digital strategies collectively enable the business operations and transformation.

Keywords: IT-business strategic alignment; digital transformation; digital optimization; IT-enabled business transformation; IT-enabled business operations.

RESUMO

Objetivo: este estudo visa responder à seguinte pergunta de pesquisa: como o alinhamento estratégico TI-negócio (AETIN) influencia a sustentação ou a transformação de um negócio pré-digital? Esse objetivo foi definido devido à criticidade desse tema para executivos incumbidos de manter esses tipos de negócio adaptativos e competitivos frente às oportunidades e ameaças da era digital. **Marco teórico:** o marco teórico deste artigo é formado por modelos de negócio pré-digitais e digitais, alinhamento estratégico TI-negócio, com foco em sustentação do negócio habilitada pela TI, transformação do negócio habilitada pela TI, otimização digital e transformação digital. **Método:** após o esboço de um modelo e proposições de pesquisa, foi realizado um estudo de caso a partir de entrevistas semiestruturadas feitas com executivos de uma multinacional do setor industrial. Essas entrevistas foram transcritas, codificadas e analisadas com base em um protocolo dedutivo de coleta e análise de dados e com o suporte do software NVivo. **Resultados:** a presença de silos organizacionais e a falta de uma estratégia digital foram identificados como problemas que têm impactado a transformação do negócio pré-digital estudado. Essas oportunidades foram mapeadas não somente pela análise do estudo de caso, mas também pela triangulação desses achados com a literatura. **Conclusão:** antigas práticas podem evitar os identificados problemas de desalinhamento estratégico e de silos organizacionais. O foco deve ser tanto no alinhamento intelectual como no alinhamento social para garantir que as estratégias de TI, de negócio e digital habilitem tanto os objetivos de sustentação como os de transformação do negócio

Palavras-chave: alinhamento estratégico TI-negócio; transformação digital; otimização digital; transformação do negócio habilitada pela TI; sustentação do negócio habilitada pela TI.

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Cite as: Mendes-da-Silva, F. M., & Albertin, A. L. (2024). The impact of IT-business strategic alignment on the transformation and operations of pre-digital businesses. *Revista de Administração Contemporânea*, 28(4), e240128. https://doi.org/10.1590/1982-7849rac2024240128.en

JEL Code: M15.

Editors-in-chief: Paula Chimenti (Universidade Federal do Rio de Janeiro, COPPEAD, Brazil)
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Reviewers: Alexandre Cappellozza (Universidade Presbiteriana Mackenzie, Brazil)
Two reviewers did not authorize the disclosure of their identities.
Peer Review Report: The disclosure of the Peer Review Report was not authorized by its reviewers.

Received: May 29, 2024
Last version received: August 19, 2024
Accepted: August 29, 2024
Published: September 09, 2024

# of invited reviewers until the decision:

	1	2	3	4	5	6	7	8	9	10
1st round	✓	X	✓							
2nd round	✓	✓								

INTRODUCTION

Global investments in information technology (IT) are projected to reach USD 13.5 trillion over the 2022-2024 triennium (Gartner, 2024). These investments underscore the central role that information systems (IS), particularly digital technologies, have come to play in corporate strategy.

Digital technologies alone are anticipated to generate approximately USD 1.5 trillion in financial benefits for Fortune 500 companies in the coming years. Conversely, failing to advance adequately in this digital agenda could result in missed opportunities worth up to the same amount (Deloitte, 2023).

This dichotomy highlights a scenario where companies are divided into two distinct groups: those leveraging IT to gain significant competitive advantages and those that are lagging in this transformative journey. But what sets these leading digital companies apart? The answer lies in strategic planning, which has emerged as the true source of competitiveness in the digital era — not merely the adoption of digital technologies (Hartani et al., 2021; Kane et al., 2015). However, this strategic planning goes beyond traditional approaches, as it necessitates the alignment of business and IT strategies with the emerging digital strategy (Canhoto et al., 2021).

The increasing relevance of digital strategy has garnered considerable attention from both academics and practitioners in the field of management information systems (MIS). This growing focus is attributed, among other things, to the rising complexity that digital strategy adds to corporate strategic planning and alignment (Chanias et al., 2019; Liang et al., 2017).

This complexity can lead to the critical challenges it introduces. Strategic misalignment, for example, can lead to significant organizational risks, such as business paralysis, when IT and business leaders pursue divergent paths. Beyond immediate disruptions, such misalignment can undermine IT's potential to drive organizational transformation.

A study by PwC involving 1,250 leaders revealed that strategic misalignment is a common issue within organizations. The majority of IT and business executives hold divergent views on the value of IT. While both agree on IT's critical role in sustaining operations, business executives expect IT to enable more disruptive transformations in business models, whereas IT executives focus on modernizing existing business capabilities. The study found that only 20% of IT executives were aligned with the expectations set by their business counterparts regarding the strategic use of IT (PwC Digital IQ Survey, 2022).

The academic foundation surrounding ITBSA has demonstrated significant potential in addressing the myriad challenges that organizations face in the digital era (Benbya et al., 2019). However, there remains a substantial gap in the literature concerning the specific challenges of formulating and aligning digital and IT strategies with business strategies in pre-digital organizations (Őr & Szabó, 2024; Yeow et al., 2018). This misalignment can severely restrict IT's ability to sustain current operations while driving the necessary organizational transformation to ensure the business remains adaptive amidst digital opportunities and threats.

Furthermore, the impact of ITBSA on organizational strategic objectives continues to be an area ripe for exploration, with numerous opportunities remaining untapped. Research suggests the need for a deeper investigation into the dynamics between IT, business, and digital strategies across diverse organizational contexts (Benbya et al., 2019; Coltman et al., 2015; Gerow et al., 2014b; Őr & Szabó, 2024). Understanding these interactions can enhance our comprehension of ITBSA's influence and provide actionable insights for crafting more integrated and effective strategies.

These gaps in the literature have led to the formulation of the following research question: How does ITBSA influence the sustaining or transformation of a pre-digital business? This question is addressed through a single case study, involving semi-structured interviews with six executives from the Brazilian business unit of a large multinational company in the non-durable consumer goods sector, which has been grappling with significant challenges related to ITBSA and the pursuit of a more strategic use of IT.

Sections of this paper provide the theoretical foundation and development of the research model and propositions. Sections 4, 5, and 6 detail the research methodology, case study, and findings, along with a discussion of these results. Finally, section 7 presents the conclusion, theoretical and practical implications, study limitations, and suggestions for future research directions.

THEORETICAL BACKGROUND

Pre-digital and digital business models

Pre-digital businesses, also known as traditional businesses, operate with information technology (IT) playing a secondary or supportive role, without significantly altering the way the organization creates, delivers, and captures value. These models primarily focus on conventional processes, with limited integration of digital technologies aimed at optimizing operations and market strategies (Kavadias et al., 2016; Schallmo et al., 2017). An example of a pre-digital business is a retail store that utilizes IS in a limited capacity to manage inventories or process purchase and sales orders, without fundamentally changing its customer interactions or revenue models

In contrast, digital businesses adopt digital technologies in a central and integrated manner to reconfigure their business models. In this context, digital technologies do more than just support; they actively transform how the organization operates, generates value, and sustains itself in the marketplace. A business is considered digital when technological innovations directly reshape the way the company interacts with customers, delivers products or services, and generates revenue. These shifts often enable new revenue streams, distribution channels, and relationship models, setting them apart from pre-digital models (Bharadwaj et al., 2013; Bradley et al., 2015; Seo, 2017).

The impact of information systems and digital technologies on pre-digital businesses

Information systems (IS) integrate people, processes, governance — or roles and responsibilities — and technology, encompassing hardware, software, and connectivity, to collect, store, and process data, allowing it to be interpreted and converted into information and, subsequently, knowledge (Boaden & Lockett, 1991; Wade & Hulland, 2004). Digital technologies, a specific type of information system, encompass new or significantly enhanced technologies, with their novelty often bringing high potential for disruption and competitive advantage to the corporations that utilize them (Bharadwaj et al., 2013; Sebastian et al., 2017). However, assimilating the transformational potential of these new or enhanced technologies poses an emerging challenge for corporations (Albertin & Albertin, 2021).

For example, the smartphone, following the launch of the iPhone by Apple in 2007, became a transformative digital technology, placing the full potential of the internet in the people's hand (Bharadwaj et al., 2013). This innovation paved the way for applications and hardware/connectivity advancements that have driven unprecedented disruptions in communication, entertainment, and business models. Beyond mobile technologies, other groups of digital technologies include social, analytics, cloud, and internet of things (IoT) technologies. Collectively known as SMACIT (social, mobile, analytics, cloud, and IoT), along with other digital technology groups such as those based on artificial intelligence (AI), advanced robotics, blockchain, virtual reality, and augmented reality, these technologies have introduced numerous opportunities and threats, especially for large-scale pre-digital businesses that have been operating for many years (Sebastian et al., 2017).

In this corporate context, IS can function as agents of business transformation and competitive enablement (Dehning & Stratopoulos, 2003; El Sawy & Pavlou, 2008; Queiroz et al., 2018). They can also support the creation of pre-digital or digital business models (Seo, 2017).

The business operations enabled by IS involve employing specific IT and business capabilities to support operations and achieve short-term organizational goals, often related to operations and financial performance (Boaden & Lockett, 1991; Dehning & Stratopoulos, 2003; Queiroz et al., 2018; Wade & Hulland, 2004). An example of these capabilities is IT service management, an IT function focused on reducing or eliminating constraints on the utility and warranty attributes of IS throughout their lifecycle (Iden & Eikebrokk, 2013).

IS can also enable varying degrees of business transformation through digitization and digitalization initiatives (Nambisan et al., 2017). Digitization refers to converting analog data into digital format or making processes, services, products, or parts of a business model digital. Digitalization, on the other hand, involves the broader application of digitization within organizations and their business models, including the social and economic contexts in which they operate, with the goal of creating more holistic changes that enhance the value proposition delivered to customers and elevate the business's performance

and competitiveness (Sambamurthy & Zmud, 2017; Vial, 2019).

Finally, the COVID-19 pandemic has underscored the importance of developing ambidexterity within organizations (Audretsch et al, 2022) defined as the ability to concurrently and harmoniously focus on short-term business operations and long-term business innovation goals to achieve value that would be nearly impossible to attain if the organization focused solely on one of these objectives (Audretsch et al, 2022; O'Reilly & Tushman, 2013).

This concept also relates to IT ambidexterity, the ability of a business to explore new digital technologies while maximizing the utilization (or exploitation) of existing digital technologies or other IS. Both practices aim to ensure the most strategic use of IT by the business (Haffke et al., 2017).

The perspective of IT ambidexterity discussed in this paper emphasizes the importance of strategically aligning IT with the pre-digital business, effectively collaborating to support both its sustain and transformation objectives. By balancing these two focuses, IT becomes an essential strategic partner, capable of ensuring operational continuity while simultaneously driving initiatives that promote organizational adaptability and competitiveness in both the short and long term.

The following sections of the theoretical background will delve deeper into the concept of ITBSA in pre-digital businesses.

ITBSA in pre-digital businesses

Strategic alignment between IT and business functions is widely regarded as a critical factor for achieving competitive advantage (Benbya et al., 2019; Coltman et al., 2015; Henderson & Venkatraman, 1993). This alignment can be realized through several practices, such as intellectual alignment and social alignment. Intellectual alignment refers to the formal integration of IT and business strategies, involving the clear definition of objectives, goals, strategic plans, and resource allocation to ensure that IT initiatives are aligned with organizational priorities. This alignment is crucial for promoting efficiency and effectiveness in strategy implementation, ensuring that IT not only supports business operations but also acts as a strategic enabler to achieve organizational objectives (Gerow et al., 2014a).

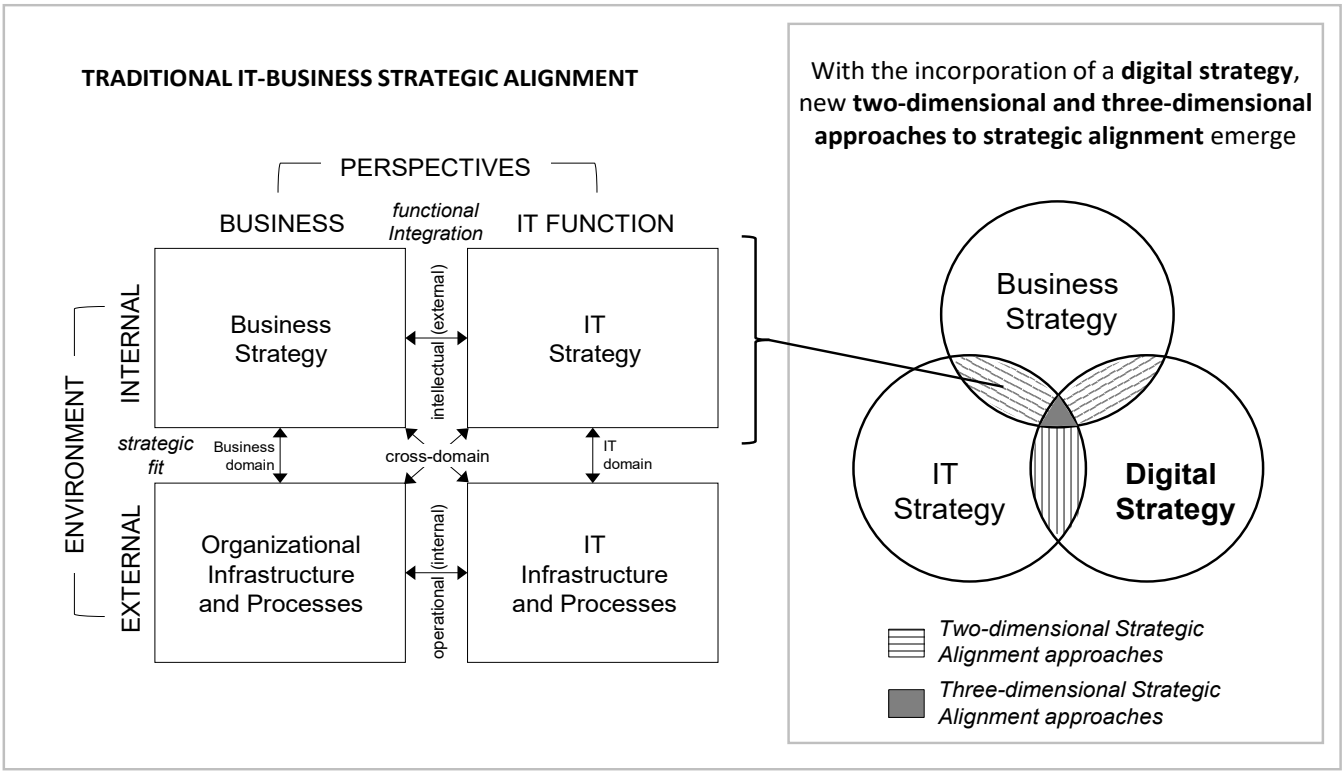

Figure 1. Non-prescriptive approaches to IT-business strategic alignment (ITBSA).
Source: Basead on Henderson, J. C., & Venkatraman, N. (1993). Strategic Alignment: Leveraging Information Technology for transforming organizations. IBM Systems Journal, 32(1), 4-16. https://doi.org/10.1147/sj.382.0472 and Teubner, R. A., & Stockhinger, J. (2020). IT/IS Strategy Research and Digitalization: An Extensive Literature Review. In Working Papers, European Research Center for Information Systems. https://www.econstor.eu/handle/10419/228978

In contrast, social alignment focuses on the informal dynamics between executives, such as interpersonal interactions, trust-building, and tacit agreements. These elements are vital for fostering cooperation and mutual understanding, especially in contexts of uncertainty or change. Social alignment enables organizational leaders to develop a shared vision and commitment to strategic objectives, even in the absence of a formal structure to guide their actions (Gerow et al., 2014a). Thus, both intellectual and social alignment are essential for the success of ITBSA, complementing each other to create a robust foundation that supports both operational efficiency and organizational adaptability (Liang et al., 2017).

In addition to analyzing the value that ITBSA can bring, another key area of academic inquiry in this field is the challenges associated with achieving this alignment (Luftman & Kempaiah, 2007). These challenges can include issues such as aligning IT solely to the business without reciprocally aligning the business to IT, relying on a 'silver bullet' IT investment with the expectation that it will address all business needs, and the lack of tools to measure the value generated by an established strategic alignment (Teubner & Stockhinger, 2020).

Moreover, there is an additional challenge known as the 'alignment paradox,' which suggests that achieving a high level of strategic alignment does not necessarily lead to high organizational value (Tallon, 2003). This paradox can result from corporate inertia caused by rigid agreements that reduce agility and the organization's adaptability (Benbya & McKelvey, 2006; Liang et al., 2017). Due to these types of challenges, some studies have characterized ITBSA as complex to achieve and difficult to maintain, describing it as a 'moving target' (Benbya & McKelvey, 2006; Gerow et al., 2014a; Luftman & Kempaiah, 2007).

Between the late 1980s and early 1990s, the first non-prescriptive approach to achieving ITBSA emerged (Coltman et al., 2015; Gerow et al., 2014a). As illustrated on the left side of Figure 1, this traditional non-prescriptive approach to ITBSA introduces four dimensions: two at the strategic level (business strategy and IT strategy) and two at the operational level (organizational infrastructure and processes, and IT infrastructure and processes). It also highlights five forms of strategic alignment, operational alignment, or cross-strategic-operational alignment between these four dimensions.

Since 2013, several studies have introduced a third component into the context of strategic alignment: digital strategy. Digital strategy is defined as a statement in which organizational strategic objectives may be partially or entirely achieved through the acquisition and use of digital technologies, transforming the way the business generates value for its customers (Bharadwaj et al., 2013; Chanias et al., 2019). Digital strategy also outlines a roadmap for implementing, sustaining, or continuously improving digital business models (Bharadwaj et al., 2013; Hess et al., 2016).

It is important to note that while IT strategy and digital strategy are related, they have distinct focuses. IT strategy concentrates on how information technology can be used to support and improve the internal operations and processes of an organization. It traditionally focuses on IT infrastructure, systems, and services that support the business's operational needs (Luftman & Brier, 1999; Weill & Ross, 2004).

In contrast, digital strategy is more comprehensive and focuses on using digital technologies to transform the business model, create new products and services, and enhance the customer experience. Digital strategy seeks to integrate emerging technologies across all aspects of the organization, directly influencing how the business competes and creates value in the market (Bharadwaj et al., 2013; Hess et al., 2016).

With the introduction of digital strategy, the traditional two-dimensional approach to ITBSA began to be revisited, evolving into a three-dimensional perspective of strategic alignment (Canhoto et al., 2021; Chanias et al., 2019; Teubner & Stockhinger, 2020; Yeow et al., 2018). This new paradigm is represented in the Venn diagram on the right side of Figure 1, which illustrates four intersections among the IT, business, and digital strategies, including three intersections representing possible two-dimensional strategic alignments and one representing three-dimensional strategic alignment.

The next section of the theoretical framework concludes with the introduction of various approaches to sustaining or transforming pre-digital businesses using IT, as represented in Figure 2.

Approaches to sustain or transform the business using IT/IS

The literature has explored various strategic options for how the IT department can support the challenge of maintaining the business's competitiveness and adaptability in the long term (El Sawy & Pavlou, 2008; Ismail et al., 2017; vom Brocke et al., 2021; Wessel et al., 2021) or even enable the creation of new business models (Seo, 2017). The influence of IS on organizational

strategic objectives began to be studied as early as the 1980s, with research focused on positioning IT as a function for business support and automation (Boaden & Lockett, 1991; Wade & Hulland, 2004).

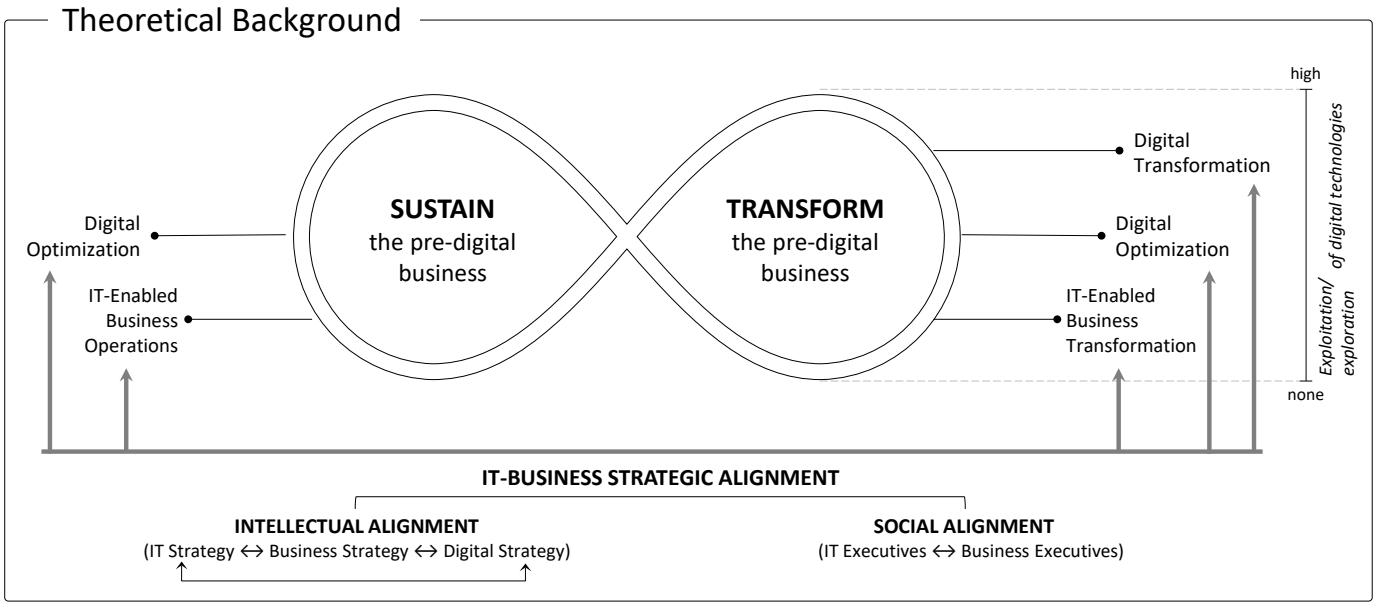

Figure 2. Theoretical background.
Source: Own elaboration (2022).

In the 1990s, some studies began to classify the degrees of transformation and potential benefits that IT could bring to businesses. One such study introduced a perspective on the transformational escalation of business enabled by IT, outlining initial stages of evolutionary or incremental transformation, as well as more advanced stages of revolutionary or disruptive business transformation (Venkatraman, 1994; vom Brocke et al., 2021). A more recent study expanded this perspective on transformational escalation by including digital transformation as an enabling approach to achieve more disruptive degrees of transformation, elevating a pre-digital business to the level of a digital business (Ismail et al., 2017; Wessel et al., 2021).

Other recent studies published in trade literature have further enriched this perspective by introducing digital optimization as an opportunity to achieve both incremental and moderately disruptive transformations in pre-digital business models using digital technologies (Libert & Beck, 2018; Newman, 2019; Wiles, 2021).

In addition to digital transformation and digital optimization, the literature has reviewed two other approaches to sustaining or transforming businesses through IT: IT-enabled business operations and IT-enabled business transformation. These four approaches are explored in the following sections.

IT-enabled business operations

IT-enabled business operations are designed to support the management and operation of business models, specifically focusing on achieving short-term organizational goals (El Sawy & Pavlou, 2008; Hartman et al., 2000; Pisano, 2015; Venkatraman, 1994). An example of IT use within a pre-digital business context under this approach would be the maintenance and continuous improvement (or lifecycle management) of the billing and accounts receivable system for a manufacturing company that produces durable consumer goods.

The relationship between ITBSA and this type of strategic objective, focused on sustaining pre-digital business operations, has been considered a critical research topic since the 1980s. Initially, studies positioned IT merely as a business support function, but this perspective evolved, recognizing IT as playing a more strategic role (Boaden & Lockett, 1991; Peppard & Ward, 2004). This remains one of the most important topics in ITBSA research today (Benbya et al., 2019), particularly as the priority of sustaining the business has become a point of tension in IT ambidexterity capacity. There is an emerging expectation among business executives for IT to act more as an enabler of business transformation (Haffke et al., 2017).

IT-enabled business transformation

IT-enabled business transformation is an approach aimed at transforming pre-digital business models, seeking incremental or even moderately disruptive improvements that impact, for example, the business's scale or scope (Hartman et al., 2000; Ismail et al., 2017; Pisano, 2015; Venkatraman, 1994; Wessel et al., 2021). As discussed, this transformational escalation of pre-digital businesses can become disruptive to the extent that it connects them with other businesses, enabling networked organizational arrangements that can leverage scale and scope advantages that would be impossible to achieve without such external integration (Sambamurthy & Zmud, 2017; Venkatraman, 1994).

An example of IT use in this context is the temporal journey of implementing an ERP system to integrate different businesses within the same corporation and harmonize their processes and corporate governance practices. An empirical study of this type of journey by Venkatraman (1994) became the seminal work on IT-enabled business transformation.

Digital optimization

Digital optimization is an approach that applies digital technologies to business operations and, beyond that, to the optimization of business models (Wiles, 2021). It focuses on implementing incremental improvements aimed at enhancing operational efficiency and effectiveness (Libert & Beck, 2018). Therefore, digital optimization can enable both moderate transformation and the sustainability of the business (Libert & Beck, 2018; Newman, 2019; Wiles, 2021).

Generally, this is achievable because digital technologies allow for a range of improvements, from small incremental changes to more significant and disruptive transformations within the organization (Bharadwaj et al., 2013; Sebastian et al., 2017). An example of a digital optimization initiative would be the use of robotic process automation (RPA) and artificial intelligence (AI) technologies to automate tax auditing processes in a financial services company.

Digital transformation

Although widely studied since the publication of its seminal publication in 2011, digital transformation still lacks a universally accepted definition. For instance, literature reviews on this topic frequently present numerous theoretical definitions and examples of what digital transformation entails. One such literature review defines digital transformation as:

> … a process where digital technologies create disruptions triggering strategic responses from organizations that seek to alter their value creation paths while managing the structural changes and organizational barriers that affect the positive and negative outcomes of this process (Vial, 2019, p. 118).

Digital transformation is also defined as a cyclical process of gradually converging a pre-digital business into a digital business — in other words, the journey of digitalizing a pre-digital business (Kohli & Johnson, 2011; Sebastian et al., 2017; Sambamurthy & Zmud, 2017; Westerman et al., 2011). It can also be considered as the undertaking of digital innovation initiatives to develop something new, distinct, and better, with the purpose of generating value for organizations and society (Albertin & Albertin, 2021). An example of a digital transformation initiative is the implementation of digital technologies — such as chatbots, virtual reality, and augmented reality — to transform the online shopping experience for a retailer's customers, potentially disrupting the company's traditional e-commerce model

John Deere, a global leader in agricultural machinery, and Magazine Luiza, one of Brazil's largest retail chains, represent notable cases of digital

transformation. John Deere, facing increasing demand for agricultural efficiency and the need to integrate emerging technologies such as IoT and big data, invested in digital solutions that not only optimize the use of the agricultural equipment it manufactures but also enhance farmers' decision-making directly in the field. These efforts have led to substantial increases in agricultural productivity and customer satisfaction (Porter & Heppelmann, 2014).

Conversely, Magazine Luiza, under pressure from intense competition from new foreign entrants such as Amazon and Mercado Livre, and recognizing the opportunities brought by the growth of e-commerce, implemented digitalization initiatives that integrated its online platform with physical stores, which also functioned as small distribution centers for online sales. Additionally, the company incorporated artificial intelligence to personalize product offers, inspired by practices already adopted by Amazon. Magazine Luiza also invested in humanizing its digital channels by using the avatar Lu and expanding the use of chatbots and instant messaging, including WhatsApp, which was pioneering at the time. As a result, the company not only expanded its customer base but also consolidated its position as a leader in the integration of digital and physical channels in Brazilian retail in the second half of the 2010s (Teixeira et al., 2018).

RESEARCH MODEL

Development of the research model and propositions

The research model illustrated in Figure 3 depicts the influence of ITBSA on the four approaches to sustaining or transforming a pre-digital business using IT, as reviewed in the literature: IT-enabled business operations, IT-enabled business transformation, digital optimization, and digital transformation. These links between ITBSA and the four approaches form the basis for the research propositions that define the exploratory scope of this study, along with the established research question.

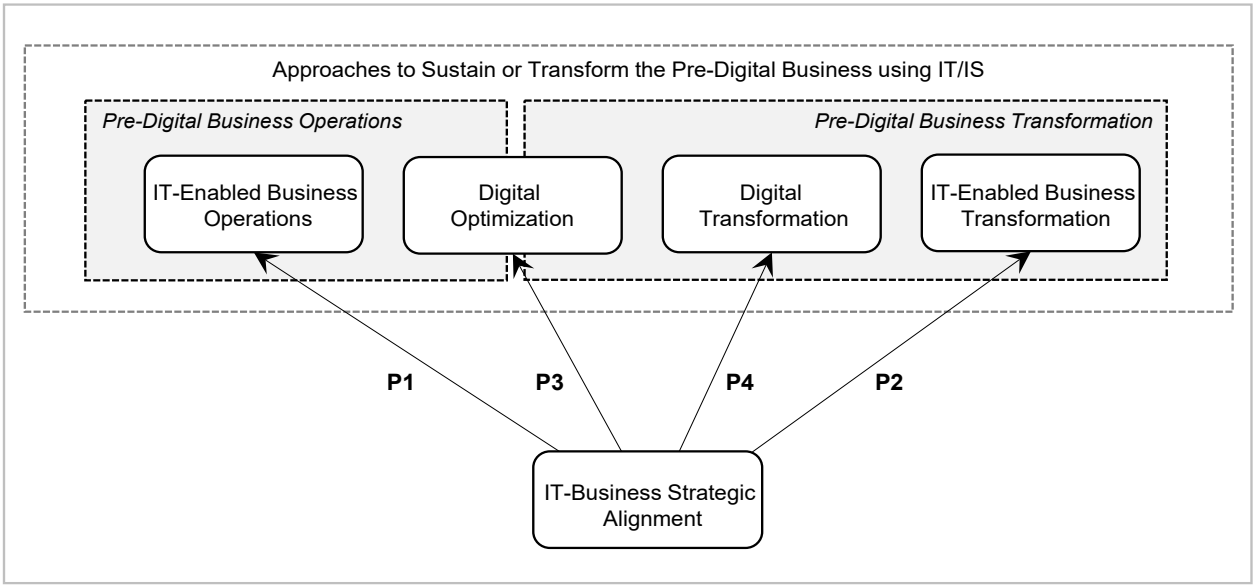

Figure 3. Research model.
Source: Own elaboration (2022).

The link between ITBSA and these four approaches is justified by the fact that this strategic alignment is commonly associated with the performance of pre-digital businesses (Benbya et al., 2019; Coltman et al., 2015; Henderson & Venkatraman, 1993), while this performance also requires a mutual focus on both sustaining and transformational organizational objectives (Audretsch et al, 2022; O'Reilly & Tushman, 2013).

However, the literature also warns of the risks of poorly calibrated ITBSA: while its absence may undermine IT's ability to positively influence performance, excessive alignment can equally limit value creation (Benbya & McKelvey, 2006; Gerow et al., 2014a; Luftman & Kempaiah, 2007; Tallon, 2003). Thus, it can be generally proposed that omissions or excesses in ITBSA could become harmful to any of the four approaches to sustaining or transforming a pre-digital business through IT.

Based on this theoretical relationship, the following four exploratory research propositions were formulated:

> Proposition P1: In the context of a pre-digital business, ITBSA influences IT-enabled business operations.
>
> Proposition P2: In the context of a pre-digital business, ITBSA influences IT-enabled business transformation.
>
> Proposition P3: In the context of a pre-digital business, ITBSA influences digital optimization.
>
> Proposition P4: In the context of a pre-digital business, ITBSA influences digital transformation.

The next section, details the methodological procedures that supported the study of the propositions P1, P2, P3, and P4. Additionally, the case study begins to be presented.

RESEARCH METHODOLOGY

Research design

This study was developed using qualitative research based on a single case study, with data collection carried out through six semi-structured interviews and data analysis performed by coding the transcribed audio from these interviews. The case study technique was chosen because it provides useful tools to answer exploratory questions such as 'how?' and 'why?' Answering the first question is important to present the context of the studied company in relation to the defined research propositions P1, P2, P3, and P4, while the second type of question will provide a basis for critical analyses of this context (Yin, 2014). Additionally, the case study technique is highly recommended for studies aimed at analyzing the impact of IS on organizations (Walsham, 1995), which aligns with the overall objective of this study.

One of the strengths of the qualitative research approach, conducted with semi-structured interviews, is the flexibility it incorporates, allowing for the collection of a large amount of empirical data. Practically speaking, this is a technique that "provides room to explore new and relevant themes that arise during the interview" (Ponelis, 2015, p. 541). This is possible because these interviews are supported by a script that guides but does not constrain the dialogue between the interviewer-researcher and the interviewee.

Next, both the rationale for selecting the target organization for this study and a general context of the case study itself are presented.

Case study selection and description

Given that this is a single case study, special care was taken in selecting the unit of analysis or target organization for the study. The first consideration was that the case study is an ideal research strategy in contexts where researchers have little control over the events being studied and when the research focus is on every day and current challenges (Yin, 2014). The second consideration was to select an organization that aligned with the scope of this research and, therefore, was facing challenges related to ITBSA and the strategic use of IT.

The target organization chosen for this case study — referred to as Alpha in this paper — is an incumbent multinational in the consumer goods sector, operating in over 200 countries, that has been facing a set of significant business and IT-related challenges. The major challenges faced by its Brazilian business unit in recent years include a constant increase in logistics costs, high fluctuations in commodity prices used in its production processes, very dynamic demands for its products, growing market pressure to improve its production, sales, and distribution service levels, and risks and impacts caused by new entrants in its market.

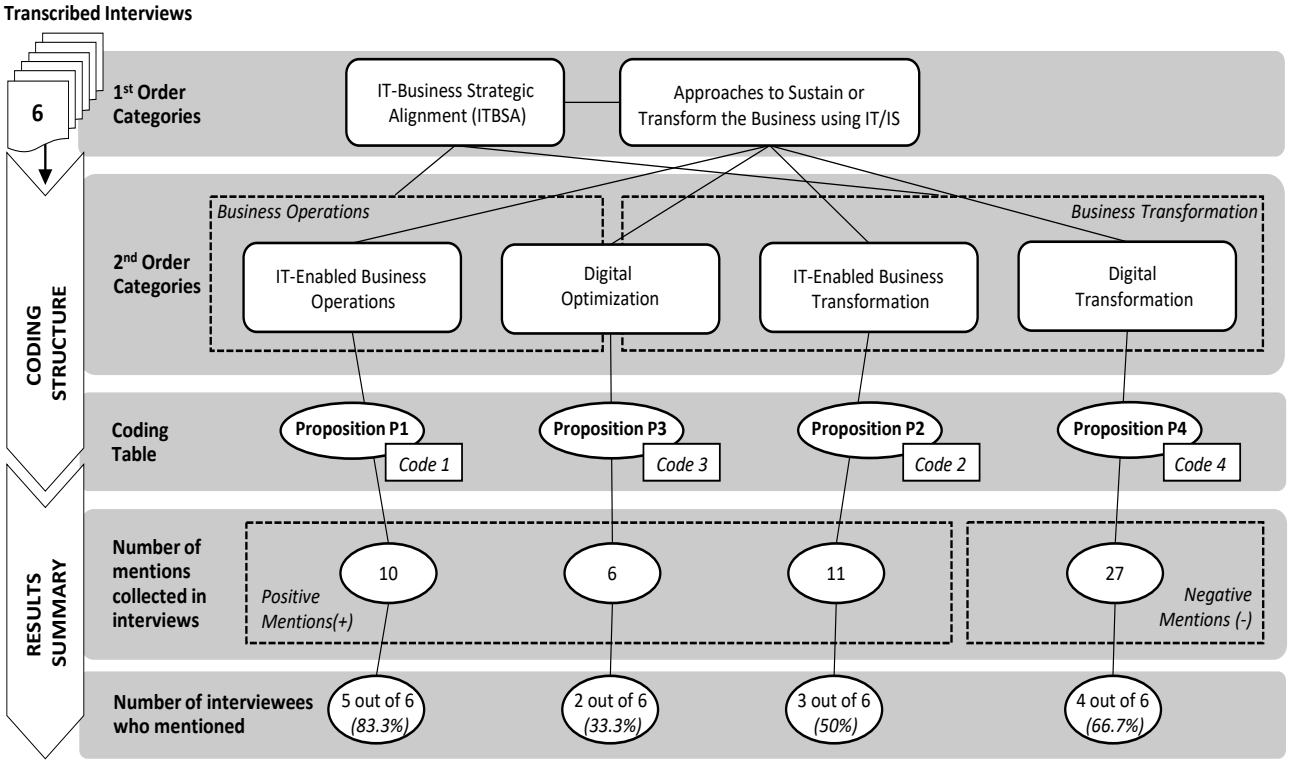

Figure 4. Coding structure and data analysis summary.
Source: Own elaboration, based on the data analysis results conducted using NVivo software (2022).

Alpha has a strategic focus on both sustaining the operations of its current business models and transforming them to pursue new opportunities for business improvement and growth. Investments in IS, particularly digital technologies, have been identified by the company's top executives as critical actions to mitigate these challenges. This reinforces the criticality of ITBSA at Alpha, and it was even mentioned in interviews as a catalyst for some of its strategic goals related to sustaining or transforming the business.

More operational alignment methods were also identified, focusing on enabling the execution of the company's strategic initiatives with the support of the IT department. For example: "There has been very strong [operational] alignment [between IT and] the business. Indeed, in the ERP upgrade program for process harmonization, a key message is that it is a business-led program enabled by IT" (Senior Project and Digital Transformation Manager, Alpha).

Following this general framework, more details about the data collection and analysis approach used in this study are presented below.

Data collection and analysis

Supported by a semi-structured script containing seven suggested questions (see Table 1 in publicly shared data), six executives from Alpha were interviewed between the second half of October and the first half of November 2021, including two from IT and four business executives. Due to the restrictions imposed by the COVID-19 pandemic, all these interviews were conducted online using a videoconferencing platform. The interviews were conducted in the interviewees' native language (in this case, Portuguese) and had their audio recorded and transcribed. These transcripts were uploaded into a project created in the NVivo data analysis software, where a table was created for coding this data.

Four codes were created, each corresponding to one of the study propositions P1, P2, P3, and P4 presented in section 3. These codes were linked to a second-order category containing the four approaches to sustaining or transforming the pre-digital business, which in turn were linked to a first-order category containing the high-level relationship between ITBSA and these approaches. This protocol and the summary of the data analysis results are

depicted in Figure 4. The detailed results of this data analysis are presented next.

RESULTS

Five of the six interviewees reported having direct or indirect influence on the formulation of the IT or business strategy of Alpha's Brazilian business unit, and all of them claimed to have direct influence on the execution of at least part of these strategies. The semi-structured interviews conducted with this group of Alpha executives provided data that, after the coding process mentioned earlier, supported the confirmation of the study's propositions P1, P2, and P3.

The NVivo software's chart module supported the generation of a summary of the data analysis results, as represented at the bottom of Figure 4. This summary shows that 83.3% (5) of the interviewees made positive references regarding P1, 33.3% (2) of the interviewees made positive references regarding P2, and 50% (3) of the interviewees made positive references regarding P3, while none of them made any negative references about these propositions. On the other hand, it was evident in the statements of 66.7% (4) of the interviewees that proposition P4 is not confirmed in the company. These results are detailed in the following sections.

ITBSA and IT-enabled business operations

The data from the six semi-structured interviews provided evidence for verifying the influence of ITBSA on IT-enabled business operations (proposition P1) at Alpha. Specifically, five of the six interviewees discussed aspects of how the IT department has defined strategic objectives and operational goals aligned with the business's operational goals. This alignment was evident, for example, in the following statement: "[The IT department] is much more operational … [We have followed] an operational model for many years [with] little adjustment, but it is a model that delivers results … I perceive that [we have] a DNA, a strong skill set, a very strong, solid set of capabilities to sustain the business, to deliver the short-term agenda, to guarantee short-term results" (Senior Strategy and Transformation Manager, Alpha).

The literature points out that these sustaining activities are fundamental for IT to deliver value to the business (Boaden & Lockett, 1991; Peppard & Ward, 2004; Queiroz et al., 2018; Wade & Hulland, 2004). Despite this being a critical strategic orientation, it often conflicts with other approaches due to the high pressure for IT to act as a source of business transformation (Haffke et al., 2017; vom Brocke et al., 2021). However, the data analysis did not identify this specific type of priority conflict within the company.

ITBSA and IT-enabled business transformation

Regarding proposition P2, it was found that ITBSA influences IT-enabled business transformation at Alpha, as three of the six interviewees provided favorable arguments for the proposition, while none argued against it. The relevance and scope of these initiatives for Alpha are evident in the following statement by one of the company's IT executives: "So, [the COVID-19 pandemic] has already opened the company's eyes to the implementation of these transformational projects, and there are several fronts … [like] the data integration part [to] understand the value of the data and how much these data can bring relevant insights [to Alpha]" (Senior IT and Digital Transformation Project Manager, Alpha).

It was also noted in the interviews that these transformational projects will not necessarily involve acquiring new IS, as they may also involve amplified use of the IS that Alpha already has to support the redesign of business processes. These initiatives to explore new IS or maximize the use of those already available are essential for the incremental or moderately disruptive innovation of a pre-digital business (Ismail et al., 2017; Venkatraman, 1994; vom Brocke et al., 2021; Wessel et al., 2021). In summary, the data from the interviews led to the conclusion that IT has indeed been a source of this type of IT-enabled transformation for Alpha's business.

O ITBSA and digital optimization

Proposition P3, which investigates whether ITBSA influences Alpha's digital optimization, was also verified in the study. This was evident, for example, in the statement of a business executive at the company, who claimed that mobile digital technologies have been enabling efficiency in the logistics area: "[I'm] talking, for example, about truck drivers using [smartphones and mobile apps] to track their trips" (Senior Logistics Strategy Manager, Alpha).

Alpha's Brazilian business unit has also been exploring other digital technologies to achieve greater

operational efficiency. For instance, RPA technology has been used by the company's logistics and tax departments to automate the creation of freight service purchase orders and the tax audit processes on invoices.

These IT use cases demonstrate the exploration and exploitation of digital technologies to improve the efficiency of the company's current pre-digital business model. As discussed, digital optimization focuses precisely on this, allowing the business to make strategic use of digital technologies without undergoing significant, impactful, and complex changes (Libert & Beck, 2018; Newman, 2019; Wiles, 2021). The results discussion section presents a critical analysis, supported by the literature, on the unbalanced focus on this and the previous approaches at the expense of digital transformation. This is the central point addressed in the following section.

ITBSA and Digital Transformation

"I really like a phrase that one of our employees uses: [we are not] doing digital transformation, [we are] doing business transformation [through] digitalization" (Senior Logistics Strategy Manager, Alpha). This statement by an Alpha executive provides a starting point for analyzing the influence of ITBSA on the digital transformation of its Brazilian business unit and the non-confirmation of proposition P4. In summary, although the interviewees stated that digital transformation is considered a strategic priority for Alpha, it was found that ITBSA is not positively influencing this approach.

One of the company's IT executives commented on a reason for this lack of ITBSA influence on the company's digital transformation, stating that there are silos between the IT department and the business areas that indicate strategic misalignment: "What we see in practice [is that] the business transformation team has a data strategy and [the IT data team does not have the] same strategy. … [There are many other silos] besides [the one mentioned]" (IT Manager for Digital Innovation, Alpha).

The presence of these silos is identified as one of the main obstacles to the digital transformation journey (Sebastian et al., 2017; Vial, 2019), as it leads to other problems such as severe communication failures and strategic and operational misalignment (Chanias et al., 2019; Coltman et al., 2015).

Despite these challenges, there is a digital strategy being formulated in the company, and this action, as seen, can be considered a significant first step toward digital transformation (Bharadwaj et al., 2013; Chanias et al., 2019; Hess et al., 2016; Kane et al., 2015) or even more, a critical success factor for executing this journey in large pre-digital organizations (Sebastian et al., 2017). According to one of the company's IT executives, this digital strategy has been co-created between the IT and business areas, but it still needs to be finalized and aligned with the operational level of the organization.

Moreover, there is difficulty in categorizing whether digital technologies are enabling a digital transformation journey or digital optimization, as the company is internally questioning: "Is it digital transformation, or is it simply automating a process? I think [there is] this [type of] questioning [here at Alpha]" (IT Manager for Digital Innovation, Alpha). This lack of clarity about what digital transformation is and where it can lead the business is a common challenge in organizations beginning to plan and execute this type of journey (Canhoto et al., 2021; Chanias et al., 2019).

It was also identified that Alpha executives have formally responded to some of these ITBSA and digital transformation challenges. They decided to create a digital transformation department and hire a new executive, or Chief Digital Officer (CDO), to lead this department. Recent literature has discussed the pros and cons of this decision. One point is that this decision alone may not guarantee that the company advances in its digitalization journey, as strategic alignment will still need to remain a focal point (Tumbas et al., 2017).

In conclusion, the data analysis from the interviews provided the perspective that digital transformation is a strategic priority for the company. However, no positive influence of ITBSA on this strategic objective was identified due to the following factors: the existence of silos between IT and business areas, indicating both strategic and operational misalignment; numerous challenges in formulating and aligning the digital strategy; the pending alignment of the digital strategy being developed with the operational level of the organization; and inflated expectations that the newly hired CDO will meet expectations and lead the company toward digital transformation. A critical analysis of these results is presented in the following section.

DISCUSSION

Digital transformation and digital optimization in pre-digital businesses

The case study indicates a critical inflection point regarding whether the executives of the studied company aim to undertake a digital transformation or, at least in the short term, intend to pursue a digital optimization journey. Overall, identifying the drivers of both journeys

can highlight the trade-offs that prioritizing one journey over the other may entail for a business (Newman, 2019; Wiles, 2021).

The specific drivers of digital transformation typically include: obtaining new revenue streams through the launch of new products or services; entering new markets or industries; establishing operational models based on shared risks and benefits among different agents (or organizations); and generating revenue from platform business models. On the other hand, the drivers of digital optimization generally include: increasing productivity, revenue, and profitability of the current operational model; reducing costs and improving delivery times for products, services, or innovations; enhancing the experience of the current customer base, employees, and suppliers; and optimizing inventory levels and asset management within the company (Wiles, 2021).

In summary, two types of comments from the executives interviewed in the case study suggested that the company is, in fact, pursuing digital optimization rather than digital transformation. First, the data analysis from the six interviews revealed divergent perceptions regarding the company's strategic priority concerning the innovation of its business models. Two executives stated that the strategic priority is to sustain the current business models, while two others mentioned that the priority is to transform them, and the remaining two said that the priority is to both sustain and transform the company. However, none of these executives reported that the company aims to make disruptive changes to the current business models or create pre-digital or digital business models in the coming years.

The other comment specifically identified some of the drivers for the company's use of IT. According to the following statement, these are drivers that typically do not align with a digital transformation journey: "The first [driver] is safety [of our employees] above all. So, we seek technological solutions that help us increase their safety level … On the other hand, [we have a strong focus on developing technological solutions for] sustainability … The third [driver is the pursuit of greater productivity], [that is, how we explore] new technologies to [improve the efficiency of] our processes" (Senior Logistics Strategy Manager, Alpha).

This bias toward digital optimization often brings short-term benefits but may lead to missed long-term opportunities. A global study conducted by Gartner in 2020 concluded that the digital strategy of an incumbent pre-digital business, such as Alpha's, should consider a hybrid approach capable of orchestrating concurrent, non-competing efforts in both digital optimization and digital transformation. The rationale behind this recommendation is that about 37% of the organizations in this study focused on digital optimization initiatives, 29% focused on digital transformation initiatives, and 35% focused on hybrid strategies that combine both digital optimization and digital transformation initiatives, with the latter group being the most successful in deriving benefits from digital technologies (Wiles, 2021).

This same study concluded that a primary focus on digital optimization initiatives can enable competitive advantage if digital technologies are not available to other organizations, especially competitors (Wiles, 2021). PHowever, this is difficult to achieve in companies that adopt more conservative approaches to digital innovation(Nambisan et al., 2017), as the studied company appears to have done.

Even if a positive influence of ITBSA on Alpha's digital transformation had been detected, due to this conservative approach, it is likely that the company would not achieve a high level of business disruption or differentiated competitive advantages through IT (Mithas et al., 2013). Therefore, the conclusion is that risk appetite is essential for the company to undertake digital transformation and, consequently, reap the broader and more exclusive benefits that such a journey can offer.

The literature also points out that adopting a culture of experimentation and risk acceptance is a critical success factor in this context (Albertin & Albertin, 2021; Chanias et al., 2019; Hartman et al., 2000; Vial, 2019). Some contemporary approaches to digital innovation management can help mitigate these risks by suggesting, for example, that digital technologies begin to be used on a smaller scale or in localized explorations within the pre-digital business. After reaching certain established quality and success criteria, they can then be gradually scaled up to the rest of the organization (Nambisan et al., 2017; Sebastian et al., 2017).

ITBSA, operations and transformation of pre-digital businesses

As discussed in the literature review, the perspective of IT ambidexterity addressed in this study emphasizes the need for the IT department to align and collaborate with the business to maintain a concurrent and harmonious focus on both the sustaining and transforming strategic objectives of the pre-digital business. This is precisely the central opportunity identified in this case study, as it was found that ITBSA influences the sustaining but only influences a less disruptive transformation of the company's pre-digital business.

The literature points to an additional caution that should be taken in this new context of seeking greater strategic alignment for a better use of IT concerning the alignment paradox. One way to avoid this situation is to focus, in a balanced manner, on both social alignment and intellectual alignment (Liang et al., 2017). In practice, this mutual focus on intellectual and social alignment involves defining and aligning priorities for the strategic use of IT and periodically reviewing these priorities whenever new opportunities or threats are identified (Coltman et al., 2015; Gerow et al., 2014b; Mithas et al., 2013; Queiroz et al., 2018).

Finally, with the increasing priority given to digital transformation and digital optimization within the company, it will be necessary to increasingly include the digital strategy as a key component of intellectual alignment (Kane et al., 2015). However, social alignment has been considered more important than intellectual alignment due to the dynamic nature of digital strategy and digital technologies themselves (Chanias et al., 2019). In other words, the novelty that digital technologies bring to pre-digital business models and the markets in which they operate makes strategic alignment more based on strong interaction between the verbs 'do' and 'learn' (Chanias et al., 2019) than on the traditional interaction between the verbs 'plan,' 'align,' and 'execute,' which primarily guides intellectual alignment.

CONCLUSION

The objective of this study was to investigate how ITBSA influences the sustaining or transformation of a pre-digital business, given the critical importance of this topic for executives aiming to lead and maintain such businesses as adaptive and competitive in the long term. The business problem underlying this study's objective is that, despite IS being considered strategic resources for sustaining and incrementally or disruptively transforming pre-digital businesses, strategic misalignment between IT and business units remains prevalent in these organizations and can, in the worst-case scenario, lead to business paralysis.

Based on this research objective and practical problem, a single-case study was conducted, with data collection and analysis performed through semi-structured interviews. The study aimed to identify the effects of ITBSA on the four different approaches to sustaining or transforming a business using IT: IT-enabled business operations, IT-enabled business transformation, digital optimization, and digital transformation. These approaches were identified in the literature as ways to enable the strategic objectives of sustaining or transforming a pre-digital business through IT.

Furthermore, a research model was developed to support the verification of the four study propositions, P1, P2, P3, and P4 (see Figure 3). It was found that ITBSA is present in the analyzed company and influences the approaches of IT-enabled business operations (proposition P1), IT-enabled business transformation (proposition P2), and digital optimization (proposition P3), while it does not influence its digital transformation (proposition P4). The following organizational challenges were identified as the primary root causes of this last effect: the presence of organizational silos and difficulties in formulating and aligning a digital strategy both strategically and operationally.

Even with the inclusion of the emerging digital strategy, traditional practices are still relevant to prevent strategic misalignment. In this case, executives must maintain a mutual focus on both intellectual and social alignment to ensure that the strategies for IT, business, and digital pave, rather than constrain, the path for increasingly strategic use of IT. This is justified because the current competitive environment requires much more adaptability than strategic planning capabilities from executives, due to, for example, the novelty and opportunities that digital technologies have introduced.

On the other hand, there is also a need to improve these strategic alignment efforts, as the traditional two-dimensional alignment model of Henderson e Venkatraman (1993) thas proven insufficient to drive digital transformation, while three-dimensional alignment has emerged as a better option for intellectual alignment. In this sense, increasing attention must be given to the digital strategy dimension, elevating it to the same level of importance as IT and pre-digital business strategies, as this focus has been identified as a critical success factor for accelerating digital transformation.

Lastly, the journey toward greater competitiveness of a pre-digital business through IT does not seem to be a one-way street. On the contrary, it requires a combination of different paths to be realized. In other words, it is necessary to emphasize the need for executives to maintain a concurrent and harmonious focus on the strategic objectives of both sustaining and incrementally or disruptively transforming the pre-digital business through IT, to avoid tensions and missed opportunities that could hinder the organization's ability to remain adaptive and competitive in the long term.

In summary, the presence of organizational silos and the lack of a digital strategy are strategic misalignment problems that have negatively impacted

the digitalization of businesses like the one studied in this case study. This relationship was deduced not only from the data analysis of the interviews but also from the triangulation of these findings with the literature, which points out that these are common challenges in large pre-digital businesses aiming to make more competitive use of IT.

The literature also provided responses to these challenges, including the need to balance social and intellectual alignment to add more flexibility and adaptability to strategic planning and alignment; the need to review intellectual alignment to increasingly incorporate and give more relevance to digital strategy; and, finally, the reinforcement of the need to adopt an ambidextrous approach to prioritize both sustaining efforts and incremental and disruptive transformation of the pre-digital business through IT.

Academic and practical contributions

Researchers in management information systems (MIS) have increasingly explored the challenges and opportunities related to the alignment between business, IT, and the emerging digital strategy, highlighting the organizational benefits that can be obtained from this three-dimensional alignment (Canhoto et al., 2021; Yeow et al., 2018). This study contributes to this discussion by providing practical and theoretical insights into how ITBSA can be used to sustain and transform pre-digital businesses. In this sense, it reinforces the importance of strategic alignment practices that are balanced and flexible enough to maintain current pre-digital business operations while simultaneously making them adaptive, points highlighted by previous studies such as those by Tumbas et al. (2017) e Haffke et al. (2017).

From a practical standpoint, this study offers clear guidelines for executives tasked with aligning business, IT, and digital strategies to sustain and transform their pre-digital businesses. It recommends adopting a balanced approach to ITBSA, which combines social and intellectual alignment, allowing IT to play a crucial role in both sustaining and transforming the business.

The importance of IT's dual function is emphasized in an excerpt from an interview with a business executive from Alpha, who highlights the importance of developing new competencies within a pre-digital organization while simultaneously promoting an ambidextrous culture, which values both transformation and the delivery of short-term results: "There is indeed a concern [with digital transformation]. And [it has been] on two fronts. [The first one is] what kind of [capabilities] I need to have in an organization that was not built to be a digital organization … Another thing is how I simultaneously move the organization toward a culture that absorbs this, values it, and at the same time delivers [short-term] results" (Senior Strategy and Transformation Manager, Alpha).

Finally, it is critical to overcome organizational silos through strong collaboration between IT and business units, which must be orchestrated by executives from both areas. Additionally, it is necessary to promote adaptive strategic alignment through, for example, periodic reviews of IT, business, and digital strategies, adjusting and aligning them as new opportunities and challenges arise. In summary, these practices are deemed essential for organizations not only to survive but also to thrive in the digital era, characterized by its high volatility and unpredictability.

Limitations and future research opportunities

One limitation of this research was the use of a single case study instead of selecting different and diverse units of analysis, as this undermines the generalizability of the results obtained (Yin, 2014). Therefore, a recommendation for future research would be to study more organizations of different sizes in the same industry or even in other sectors. After a new study with this diversification of data sources, a quantitative method could also be used to test a research model and hypotheses, meaning that the study would shift to a deductive rather than inductive data collection and analysis workflow.

These future studies could also support a broader investigation into whether the traditional two-dimensional approach of ITBSA truly has little or no influence on the digital transformation of pre-digital businesses. These approaches could lead to other research opportunities, such as a predictive study to list scenarios of what might happen to IT departments and executives after the organizations in which they operate are digitally transformed. Another opportunity could be to study more deeply not the influence of ITBSA but of an 'IT-business-digital strategic alignment' on the sustaining and transformation of a multisectoral set of pre-digital businesses

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Conflict of Interests

The author informed that there is no conflict of interests.

Funding

The authors reported that there was no funding for the research in this article.

Plagiarism Check

RAC maintains the practice of submitting all documents approved for publication to the plagiarism check, using specific tools, e.g.: iThenticate.

Authors' Contributions

1st author: conceptualization (equal), formal analysis (equal), methodology (equal), project administration (equal), supervision (equal), validation (equal), writing - original draft (equal), writing - review & editing (equal).

2nd author: conceptualization (equal), formal analysis (equal), methodology (equal), project administration (equal), supervision (equal), validation (equal), writing - original draft (equal), writing - review & editing (equal).

Peer Review Method

This content was evaluated using the double-blind peer review process. The disclosure of the reviewers' information on the first page, as well as the Peer Review Report, is made only after concluding the evaluation process, and with the voluntary consent of the respective reviewers and authors.

Data Availability

The authors claim that all data used in the research have been made publicly available, and can be accessed via the Harvard Dataverse platform:

Mendes-da-Silva, F. M.; Albertin, A. L. 2024, "Replication Data for: "The Impact of It-Business Strategic Alignment on The Transformation and Operations of Pre-Digital Businesses" published by RAC-Revista de Administração Contemporânea, Harvard Dataverse, V1. https://doi.org/10.7910/DVN/ZRG5FN

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