The digital transformation for innovative business models in the financial industry: the perspective of engaging strategic stakeholders

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Abstract

Purpose – To analyze the role of technologies in digital transformation (DT) and innovative business models (IBMs) in the financial industry (FI) from the perspective of strategic stakeholders.
Design/methodology/approach – A systematic literature review (SLR) was conducted with articles written between 2008 and 2023, utilizing Scopus, Web of Science, ScienceDirect and Wiley databases.
Findings – The adoption of innovative technologies, digital platforms and automation was identified as the key outcome. The connection between stakeholder involvement and technologies in DT is emphasized. A theoretical framework integrating DT into organizational objectives is proposed.
Research limitations/implications – The study presents limitations in the selection of databases and suggests a deeper exploration of stakeholder involvement.
Originality/value – This systematization resulted in the framework presented in figure 6, comprising strategic elements that can be used as a managerial tool by managers seeking to internalize the principles of DT.

Keywords Digital, Digital startups, Digital transformation, Innovative business model, Stakeholder
Paper type Research paper

1. Introduction

The development of the financial system requires transformations within companies, government, and society. Actions in this regard include: (1) regulating and standardizing the system to ensure liquidity for institutions; (2) introducing new currencies; (3) implementing economic adjustments to mitigate financial crises; and (4) strengthening institutions and economic sectors in response to the impacts of the financial system (Basel Committee on Banking Supervision, 2010; Cavalcanti, Gutierrez, & Figueiredo, 2021).

Oliveira, Bomfin, and Franklin-franklin (2019) underscore that the financial ecosystem is becoming increasingly demanding owing to escalating complexity, the emergence of new competitors, and the continual fusion of the digital realm. This rapid evolution necessitates the cultivation of distinct skills (Andrade & Gonçalo, 2021). Companies such as Meta, Google, and Amazon are already participating in this ecosystem, bringing their own clientele (Di Castri

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& Plaitakis, 2018). Additionally, the relationship between banks, fintechs, and big techs is in constant evolution, albeit collaboration among them being challenging due to intensified competition spurred by technological advances in DT (Verhoef *et al.*, 2021).

In Brazil, there is a positive movement in the FI, even in a hostile economic context. Taking advantage of more flexible regulatory opportunities (Lee & Shin, 2018), many actions related to controls can be observed. Some examples are (1) greater control over data usage as per Law No. 13,709/2018, distributing obligations between controllers and operators (Brazil, 2018); (2) regulation of CMN – Resolutions 4,656 and 4,657 – for fintech operations (Central Bank of Brazil (BACEN), 2018a, b); and (3) approval of guidelines to implement the Open Banking System in the country, through Communication No. 33,455 (Central Bank of Brazil (BACEN), 2019).

Therefore, companies need to evolve from merely being digital assets to constructing a more collaborative business model (Fenwick, McCahery, & Vermeulen, 2019), aiming to provide resources geared towards interaction with stakeholders, government, and society in the digital realm. As Hie (2019) suggests, studies indicate that financial institutions are being challenged by fintechs, which offer more attractive proposals to consumers, effective services, and reduced costs tracing to their business models and associated technology.

In this regard, several research gaps stand out, which converge with the proposed framework of this research project: (1) examining the financial ecosystem and disruptive innovations, particularly the emerging benchmark companies in the sector (Palmié, Wincent, Parida, & Caglar, 2020); and (2) considering managers' proactivity in creating new business models (Gfrerer, Hutter, Füller, & Ströhle, 2020).

With the aim of addressing this gap, a systematic literature review was conducted to answer the following research question: What is the role of adopted DT technologies in IBMs in the financial industry (FI), from the perspective of engaging strategic stakeholders?

As a contribution, this research offers an overview of significant factors in financial industry DT, benefiting the advancement of the theme and generating knowledge for scientific production opportunities in Brazil. Moreover, it is essential for understanding how stakeholder engagement drives DT in the FI, providing valuable insights from a theoretical framework to promote innovation and sustainable growth. Thus, it is evident that the study holds great potential to aid the advancement of disruption and technology in adapting innovation to business models in the financial system.

In addition to this introduction, this article is divided into four more distinct sections. Section 2 provides the theoretical basis of the research, focusing on the previous literature on DT and IBM. Then, in Section 3, the chosen method for conducting the research is demonstrated. In Section 4, the results of the investigation are outlined and analyzed in line with the purpose of this study, and finally, in Section 5, the researchers' considerations on the study are presented, accompanied by recommendations for future investigations.

2. Theoretical framework

2.1 Digital transformation (DT)

The term "DT" can be contextualized in several ways: (1) the integration of digital technologies and connectivity to enhance performance and competitiveness (Ismail, Khater, & Zaki, 2017); (2) the adoption of business rules and techniques to maintain digital competitiveness (Kane, 2017); and (3) the organizational transformation through communication, computing, connectivity, and information technologies (Vial, 2021).

According to Venkatesh, Mathew, and Singhal (2019), DT emerges as a catalyst for innovation and the creation of new business models. By integrating technology and management, DT, as Venkatesh *et al.* (2019) argue, transforms processes and overcomes traditional limitations. For IBMs, DT represents a means of creating new operational and delivery methods, with strategic decisions being a decisive factor for the success of this transformation.

DT drives the obsolescence of traditional business models, as argued by Tongur and Engwall (2014) and Kiel, Arnold, and Voigt (2017). In response, IBMs, characterized by changes in key

elements and architecture (Foss & Saebi, 2017), become crucial. This renewal enables value capture through interconnected activity systems (Zott & Amit, 2010). Digitalization also redefines the role of management, introducing new tools and concepts, as highlighted by Gustafsson, Kristensson, and Witell (2012) and Bresciani, Ferraris, and Del Giudice (2018).

The DT, an entrepreneurial and disruptive process (Henfridsson & Yoo, 2014), radically redefines how organizations create and deliver value. By integrating it into strategy, companies can drive innovation, as noted by McAfee and Brynjolfsson (2018). According to Westerman, Bonnet, and McAfee (2014), this transformation requires a reorientation of operations, customer experience, and processes, with a focus on digital aspects.

2.2 Innovative business models (IBMs)

Ramdani, Binsaif, Boukrami, and Guermat (2020) assert that innovating within a business model can induce changes in processes, personnel, partnerships, and the company itself. Financial institutions, such as traditional banks and fintechs, are adapting to the digitization of services, deemed a disruptive innovation (Das, Verburg, Verbraeck, & Bonebakker, 2018; Forcadell, Aracil, & Ubeda, 2020; Gradillas & Thomas, 2023).

The rapid advancement of digitization poses challenges for traditional institutions and fintechs to position themselves (Kutnjak, 2021). Business models are evolving towards greater adoption of platforms/ecosystems (Dhar & Stein, 2017). Ferreira (2018) suggests that fintechs have an advantage in this scenario, pressuring traditional institutions by meeting customer needs and developing their own partnerships or platforms.

Hays (2022) highlights several changes in financial business models, including banking transactions via applications or voice commands, digital personalized assistance, development of financial APIs (Application Programming Interfaces), and blockchain authentication. Furthermore, disruptive innovations have enhanced financial institutions with technologies such as artificial intelligence, big data, RPA (Robotic Process Automation), machine and deep learning, multi-cloud, biometric identification, and facial recognition, which increase the security and efficiency of the financial system.

2.3 Stakeholder engagement

Stakeholder engagement is an interactive process that requires active participation from interested parties, both from the organization side and among the stakeholder community (Viglia, Pera, & Bigné, 2018). It encompasses the practices an organization adopts to positively involve stakeholders in its activities (Noland & Phillips, 2010; Phillips, 1997). According to Agrifoglio, Cannavale, Laurenza, and Metallo (2017), such enhanced engagement magnifies the outcomes and impact of these interactions.

Organizations aim for stakeholder engagement to improve functions like idea development (Sorensen, 2021), brand promotion (Frempong, Chai, Ampaw, Amofah, & Ansong, 2019), problem-solving (Sashi, 2021), and training for product usage (Peltier, Dahl, & Swan, 2020; Van Klyton, Tavera-Mesias, & Castaño-Muñoz, 2021). Additionally, engagement helps align needs and solutions (Allataifeh & Moghavvemi, 2021), providing mutual benefits for both the organization and its stakeholders (Greenwood, 2007).

In the B2B context, DT necessitates that managers reassess organizational structures and strategies to create value for customers, while handling vast amounts of data requiring analysis and knowledge extraction (Leone, Schiavone, Appio, & Chiao, 2021).

3. Methodology

To address the research question, a SLR was conducted following Richardson (2017) guidelines. Primary data from the SLR were analyzed to identify researchers' understandings and approaches to the topic. Secondary data were derived from an in-depth analysis of the

selected articles. The process comprised: (1) planning, (2) review execution, and (3) elaboration and dissemination, aimed at categorizing the studies according to the defined scope.

(1) *Planning:* This stage involved establishing the components of the review procedure, including the theoretical framework, search criteria, language, publication categories, temporal scope, and databases. Terms such as "Digital Transformation", "Digital", "Innovative Business Model", "Business Model", "Stakeholder", "Innov*", "Startups", "Digital Innovation" e "Technological Innovation" The review encompassed articles from 2008 to 2023, sourced from Scopus, Web of Science, ScienceDirect, and Wiley databases.

(2) *Content analysis:* The systematic review was conducted on July 27, 2023, with an initial sampling of 1,950 articles from the four databases. Following specific filters, 563 duplicate documents were eliminated, resulting in 1,387 articles. Out of these, 51 were selected for detailed analysis, with nine excluded due to inaccessibility, leaving 40 articles. Studies with empirical data related to DT and IBMs were prioritized, culminating in 29 studies coded from T1 to T29.

(3) *Data description and presentation:* This phase involved descriptive and content analysis. The information was organized using Parsifal software (Freitas, 2020) and graphically visualized in MS Excel. The content analysis followed the methodology outlined by Bardin (2016).

The research delineation is presented in Figure 1.

In the third stage, the analysis categories were transferred to an MS Excel® file, where the analysis and discussion of the results presented in the following section took place.

3.1 Descriptive analysis

The 29 articles obtained during the selection process are listed in Table 1, highlighting the diversity of authors, publication sources, and publication years.

DT has solidified itself as one of the key drivers of substantial global changes (World Economic Forum, 2016). This prominence justifies the increase in the quantity of publications on the subject in recent years. As shown on Figure 2, the analyzed studies primarily concentrate on the period from 2020 to 2022.

Twenty-five distinct journals were identified, among which the IEEE Transactions on Engineering Management and the Journal of Business Strategy stand out, each with two publications. Table 2 lists the primary journals in the sample.

The descriptive analysis reveals that the literature analyzed on DT and IBMs does not highlight a single author, as well as that journals from different areas dedicate to this research field. This corroborates the potential of DT and IBMs.

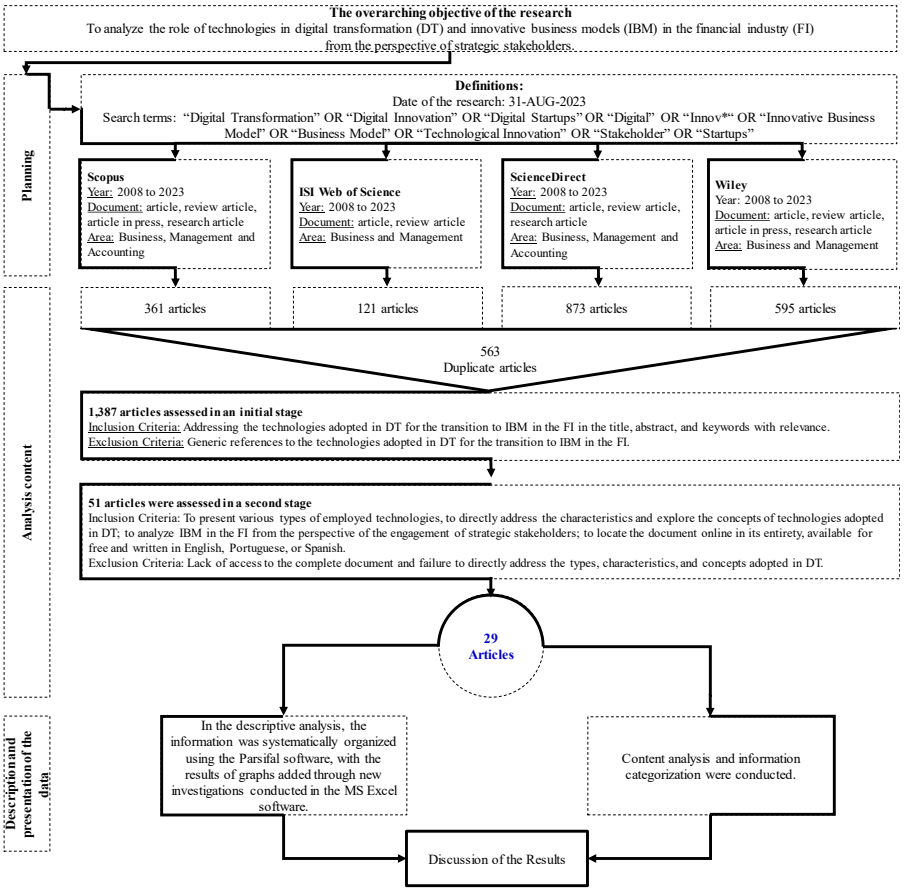
3.2 Content analysis

The categorization of the selected articles reveals that the five blocks delineating the DT pyramid are mentioned in the majority of cases. There is a consistent focus of analysis, primarily concentrated on the aspect of Technology, as indicated in Table 3:

Notably, the "Technologies" category has gained prominence as it serves as the technical infrastructure for the operationalization of IBMs. This category synergizes with the "Business Model" category, given that companies that harness technologies to enhance a new paradigm (Verhoef *et al.*, 2021) and manage operational matrices (Lee, Wang, Desouza, & Evans, 2021) generate greater business value.

4. Discussion of results

The following section addresses the Corporate Layers through an in-depth exploration of three key research questions.



Source(s): The authors (2024)

Figure 1. Approach employed for the selection of studies

4.1 Enabling technologies

Which technologies are adopted in DT for the transition to IBM?

Digital Transformation (DT) represents a series of social, economic, and cultural changes underpinned by technologies that enable adaptation and business success in the digital era (T4, T5, T19). The analysis of 29 articles highlights the following practices:

(1) *Artificial intelligence (AI):* This broadly applicable technology facilitates decision-making (Mansell, 2021; Gama & Magistretti, 2022), automates processes, personalizes products and services, analyzes data, and enables the provision of more intelligent services (T2, T3, T4, T10–T13, T20–T22, T24, T26);

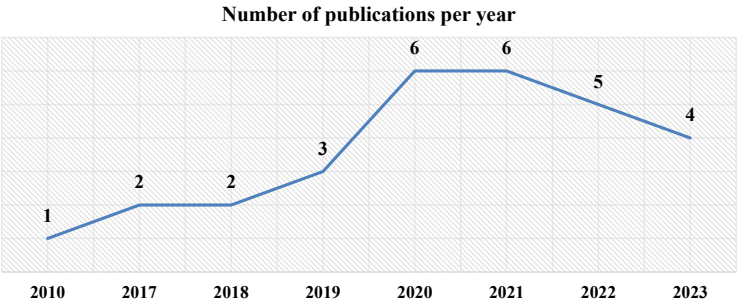
(2) *Big data:* This allows for in-depth analyses to understand customers, identify trends, and support decision-making, proving itself critical for detecting needs and opportunities (T3, T13, T20, T22, T24, T25);

(3) *Digital channels:* Applications, websites, social media, and e-commerce platforms facilitate customer acquisition, interaction, and product promotion. Organizations

Table 1. List of selected articles

#	Authors	Journal	Year	#	Authors	Journal	Year
T1	Cavallo *et al.*	*Journal of Small Business Management*	2023	T16	Still *et al.*	*Proceedings – 2017 IEEE 19th Conference on Business Informatics, CBI 2017*	2017
T2	Danarahmanto *et al.*	*Business: Theory and Practice*	2020	T17	Mattsson & Andersson	*Journal of Business and Industrial Marketing*	2019
T3	Moschko *et al.*	*Journal of Product Innovation Management*	2023	T18	Kozma & Teker	*Society and Economy*	2022
T4	Brunetti *et al.*	*TQM Journal*	2020	T19	Tohanean & Weiss	*Quality – Access to Success*	2019
T5	Broekhuizen *et al.*	*Journal of Business Research*	2021	T20	Matzler *et al.*	*Journal of Business Strategy*	2018
T6	Troise *et al.*	*Technology Analysis and Strategic Management*	2023	T21	Sushandoyo *et al.*	*International Journal Of Innovation Management*	2022
T7	Gularso *et al.*	*Pertanika Journal of Social Sciences and Humanities*	2020	T22	Guo *et al.*	*IEEE Transactions on Engineering Management*	2021
T8	Bretschneider *et al.*	*International Journal of Innovation and Technology Management*	2021	T23	Rodrigues, J. C.	*International Journal of Entrepreneurial Behavior & Research*	2022
T9	Rambow-Hoeschele *et al.*	*2018 IEEE International Conference on Engineering, Technology and Innovation, ICE/ ITMC 2018 – Proceedings*	2018	T24	Curry *et al.*	*Springer*	2021
T10	Agarwal *et al.*	*Research Policy*	2021	T25	Zillner, S.	*Springer*	2021
T11	Alberti, & Varon Garrido	*Journal of Business Strategy*	2017	T26	Frare *et al.*	*Brazilian Business Review*	2023
T12	Rambow-Hoeschele *et al.*	*Advances in Science, Technology and Engineering Systems*	2019	T27	Li, F.	*Technovation*	2020
T13	Dressler & Paunovic	*European Journal of Innovation Management*	2020	T28	Trischler & Li-Ying	*Review of Managerial Science*	2022
T14	Lin *et al.*	*Industrial Marketing Management*	2020	T29	Teece, D.	*Long Range Planning*	2010
T15	Przybilla *et al.*	*IEEE Transactions on Engineering Management*	2022				

Source(s): The authors (2024)



Source(s): The authors (2024)

Figure 2. List of publications by year

Table 2. Key journals in the sample

Articles	Number of publications
IEEE Transactions on Engineering Management	2
Journal of Business Strategy	2
Journal of Product Innovation Management	1
Journal of Small Business Management	1
Research Policy	1
Journal of Business Research	1
Technovation	1
Other	20
Total	*29*

Source(s): The authors (2024)

Table 3. Evidence of the DT base composition

Corporate layers	Corporate building blocks	Context
Business strategy	Business Model	T1; T2; T3; T4; T6; T7; T8; T10; T11; T13; T14; T16; T17; T18; T19; T20; T21; T22; T23; T26; T27
Corporate execution	Operating Model	T2; T3; T4; T6; T8; T10; T11; T13; T14; T15; T19; T20; T25
	Operations	T4; T8; T10; T13; T14; T19; T20; T25
	Go-to-Market	T1; T2; T3; T8; T10; T13; T14; T17; T18; T23; T26; T27
Enabling technologies	Technologies	T1; T2; T3; T4; T5; T6; T7; T8; T9; T10; T11; T12; T13; T14; T15; T16; T17; T18; T19; T20; T21; T22; T23; T24; T25; T26; T27; T28; 29

Source(s): The authors (2024)

resort to digital platforms to deliver services, connect with stakeholders, and manage business operations (T1–T8, T11, T13, T15–T18, T20–T23, T29);

(4) *Digitalization:* This refers to the replacement of analogical operations with digital processes, fostering automation, analysis, and efficiency by converting workflows into digital formats (T3, T4, T6, T12, T16, T19, T23, T26).

Some listed technologies – such as 5G, which has the potential to generate new revenue streams and enhance consumer engagement (T18), and omnichannel systems, which integrate various channels to improve customer experience and digital positioning (T5, p. 3) – stand out:

> Companies can respond to digital change in different ways. Consequently, companies' responses also vary in the degree of (a) digital transformation, (b) data-driven decision-making, (c) platform openness, and (d) omnichannel integration between supply and demand.

Several studies make extensive use of the term Digital Technologies, although Digital Transformation (DT) typically encompasses information and communication technologies aimed at creating value and exploring new opportunities (T1, T2, T6, T7, T10, T17, T21, T27, T28 and T29). Strategically integrating these technologies is crucial in DT, as it transforms business operations and reshapes organizations' relationships with their customers.

4.2 Corporate execution

> Which are the processes and tools used, as well as the market concentration of these IBMs?

In the analysis of the articles, relevant tools and processes were identified within IBMs, such as the use of data analytics and data mining technologies (T1, T2, T7). In terms of processes, key practices included the personalization of digital technologies in manufacturing, such as sensor automation and predictive maintenance (T2, T4), as well as the redesign of internal processes to enhance efficiency and drive new revenue models (T6, T10, T11, T13, T20). The digitalization of processes was also adopted to align operations with digital demands (T20, p. 15).

> Companies need to grapple more intensely with the question of which new business models are enabled by digitalization. In the end, it's about linking digital products to digital processes and adding new revenue streams.

It is crucial to consider the intersection between innovation, market strategies, and competitive dynamics when addressing the processes, tools, and market concentration within an IBM.

4.3 Business strategy

> What are IBMs?
>
> Which stakeholders are strategic in DT for the transition into IBM?

Most of the articles do not address the sectors in which startups operate with a particular focus on IBMs. Some identify segments such as FinTechs (T1, T26), EdTechs (T17), Sustainability (T2), and IT Services (T14), while traditional businesses in transition encompass manufacturing, education, public sector (T3, T4, T10), wineries (T13), football clubs (T18), and cultural sectors (T23, T27). Investors (T1, T2, T3, T9, T16, T28, T29) and business partners (T1, T2, T7, T12, T16, T21, T22, T28, T29) are crucial in funding and supporting Digital Transformation (DT). Regulators and government entities (T1, T6, T10, T12, T16, T28) play a significant role, especially in regulated sectors. The community and society are also highlighted (T4, T11, T14, T19, T20, T22, T28) in supporting IBMs.

Sectors like FinTechs are more likely to adopt an IBM, involving stakeholders such as entrepreneurs, clients, investors, and regulators. The transition to IBM is critical, with strategic and operational implications. The literature focuses on FinTechs, with less attention given to insurance or credit unions. Although Brazil is mentioned, there is a global bias in the studies, suggesting the need for more local research. The interaction between DT, IBM, and stakeholders is often treated in a linear fashion, and it would be valuable to explore more complex dynamics.

Most studies employ cross-sectional approaches, neglecting the long-term impacts on stakeholder engagement. The contribution of this study lies in proposing an integrated

framework, advancing the literature on DT and innovation, and providing managerial insights into the strategic role of stakeholders in adapting to new technologies.

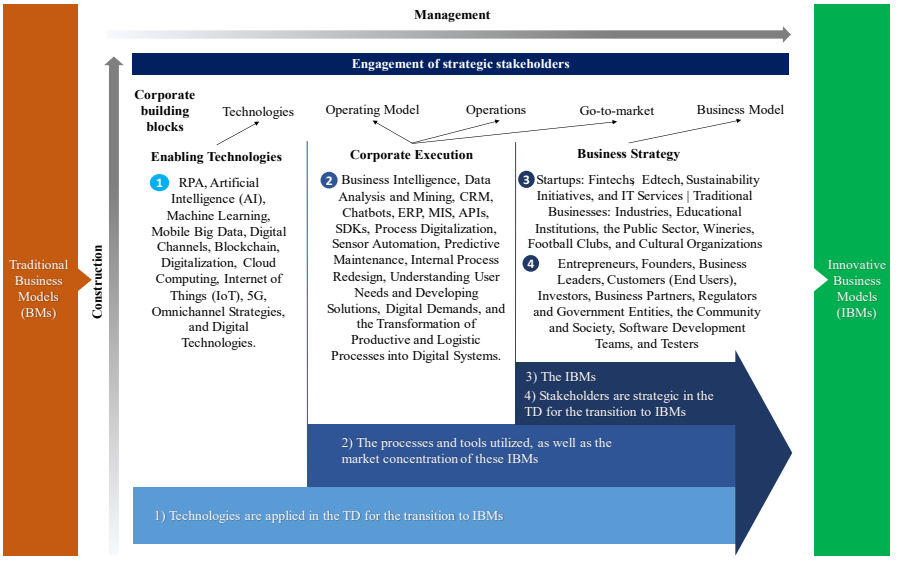
4.4 Theoretical framework

The literature review and findings highlighted key stages in the DT process during the transition to IBM, including the adoption of technologies, processes, tools, strategies, and stakeholder engagement. These elements culminated in the framework presented in Figure 3, which serves as a valuable managerial tool.

The principles of Digital Transformation (DT) are essential for transitioning to the New Market Infrastructure, promoting interconnected stages with stakeholder engagement. This transition requires structured planning, encompassing the identification of technologies, selection of tools, and optimization of processes within the IBM. The study adopts a comprehensive approach, considering technologies, processes, tools, business strategies, and stakeholder engagement for effective transformation.

Stakeholder involvement is an interactive process that requires active participation to generate innovative solutions, promote the brand, address issues, and align organizational objectives to market demands. Stakeholders include clients, investors, business partners, regulators, governments, and society, each playing a crucial role in the adoption of technologies and the development of solutions. Clients and partners contribute to the co-creation of value, while investors and regulators facilitate the adoption of disruptive technologies.

The findings highlight the synergy among technologies such as AI, big data, and IoT, which enhance understanding of stakeholder behavior, facilitate interactions, and support decision-making. The study also identifies challenges, such as cultural, technological, and regulatory barriers, but emphasizes that the strategic engagement of stakeholders is critical for business model innovation and creation of competitive advantage in DT within the financial sector.



Source(s): The authors (2024)

Figure 3. Managerial tool framework for internalizing DT principles

5. Conclusions

The study examined how technologies drive Digital Transformation (DT) within the financial industry, emphasizing the importance of stakeholder involvement. It concludes that, despite gaps such as the role of technologies and the assessment of the impact of disruptive innovations, stakeholder engagement is fundamental. The literature review addressed the intersection between DT and Business Model Innovation (BMI) in the financial industry (FI), with 29 selected and analyzed studies.

The study proposes a theoretical framework to help managers understand DT and its connections, promoting innovative practice, particularly in financial institutions with a focus on strategic stakeholders. It also highlights that the strategic integration of technologies and alignment with business objectives are crucial for new business models in the digital age. The results underscore the theoretical importance of discussing the role of technologies in DT and the transition to BMI in financial institutions (Chiu, 2016; Kujala, Sachs, Leinonen, Heikkinen, & Laude, 2022), suggesting that DT is essential for companies seeking innovative growth.

Effective stakeholder engagement is vital for the success of both DT and BMI, with strategies including stakeholder mapping, clear communication, and the co-creation of value. Education and training through workshops and seminars and participatory governance are also essential. Monitoring and recognizing stakeholder contributions ensure continuous alignment with organizational objectives.

The success of a business strategy relies on the involvement of various stakeholders. Senior management is crucial in defining the vision, setting goals, and prioritizing DT initiatives, aligning resources and directing the organization. Investors and boards provide financial resources and exert pressure for results, while business partners contribute with skills, technologies, and access to markets. Regulators and government bodies establish the legal and regulatory frameworks necessary for the implementation of innovative strategies.

Corporate execution and technological enablement are fundamental elements of DT. As outlined in the document, the following strategies are emphasized:

(1) Corporate execution:

- *Structured governance:* Develop a clear action plan with well-defined tactical and operational objectives.
- *Internal engagement:* Mobilize employees through transparent communication and incentives aligned with organizational goals.
- *Culture of innovation:* Foster interdepartmental collaboration and promote a result-oriented mindset.

(2) Technological qualification:

- *Infrastructure adaptation:* Implement technologies such as AI, big data, IoT, and cloud computing to support strategic objectives.
- *System integration:* Promote interoperability between new and legacy systems.
- *Digital empowerment:* Train internal teams to adopt and optimize the use of enabling technologies.

Stakeholders involved in corporate execution and technological enablement include internal employees, such as project managers and operational teams – who ensure alignment with strategic objectives – and technology partners – who provide specific solutions and technical expertise. Executive leadership oversees execution and makes decisions regarding resource allocation and technology prioritization. Regulators and auditors ensure compliance with standards, particularly in regulated sectors. The study demonstrates that effective engagement requires structured approaches, with senior management leading the strategy and aligning stakeholders to achieve DT objectives and promote innovation and competitiveness.

The framework can assist managers in implementing emerging technologies (such as AI and big data), optimizing operations and enhancing customer experience. It supports the creation of Business Model Innovation (BMI), increasing competitiveness in the financial sector. FinTechs can enhance strategic partnerships and co-create value with stakeholders. This study is beneficial for courses in management, IT, and innovation, exploring emerging technologies and stakeholder engagement, and serves as a foundation for case studies in strategy and innovation. It provides insights into policies such as Open Banking and data protection, assisting policymakers in creating innovative environments.

Digitalization, driven by stakeholder engagement, promotes financial inclusion by improving access to financial services in underserved communities. Tools such as AI and big data help personalize financial products, facilitating access to credit and digital financial services. Digitalization economically empowers vulnerable populations, fostering entrepreneurship and income generation. Microcredit programs and FinTechs targeting micro-entrepreneurs illustrate this impact.

Challenges include financial and digital literacy, as well as data security and privacy concerns. DT also contributes to sustainability by aligning with the Sustainable Development Goals (SDGs), reducing the use of physical resources, and promoting practices such as the circular economy. FinTechs adopting ESG practices encourage sustainable investments. Technologies like IoT and blockchain improve traceability and promote responsible practices. However, the lack of technological infrastructure may hinder the spread of these practices and exacerbate social and environmental inequalities.

The study highlights the need to involve all stakeholders and develop policies that integrate objectives across all areas of the company, including other stakeholders. These insights enhance innovative practices in implementing the foundations of DT, offering practical guidance for managers to focus on crucial and strategic elements to achieve positive results.

The study acknowledges limitations, such as the restriction to four databases and the use of filters that may have excluded relevant studies. It recommends expanding the search to include other data sources, such as grey literature, and emphasizes the importance of thoroughly exploring stakeholder involvement, considering various perspectives in decision-making, and driving strategic, tactical, and operational changes in each business.

References

Agrifoglio, R., Cannavale, C., Laurenza, E., & Metallo, C. (2017). How emerging digital technologies affect operations management through co-creation. Empirical evidence from the maritime industry. *Production Planning and Control*, *28*(16), 1298–1306. doi: 10.1080/09537287.2017.1375150.

Allataifeh, H., & Moghavvemi, S. (2021). The individual dimension of digital innovation: The altered roles of innovation agents and market actors. *Sustainability*, *13*(16), 8971. doi: 10.3390/su13168971.

Andrade, C. R. D. O., & Gonçalo, C. R. (2021). Digital transformation by enabling strategic capabilities in the context of 'BRICS'. *REGE Revista De Gestão*, *28*(4), 297–315. doi: 10.1108/rege-12-2020-0154.

Bardin, L. (2016). *Content analysis. Revised and expanded edition* (Editions 70). Brazil: São Paulo.

Brazil (2018). Law Nº 13.709. Available from: https://www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/lei/l13709.htm (accessed 30 September 2024).

Bresciani, S., Ferraris, A., & Del Giudice, M. (2018). The management of organizational ambidexterity through alliances in a new context of analysis: Internet of Things (IoT) smart city projects. *Technological Forecasting and Social Change*, *136*, 331–338. doi: 10.1016/j.techfore.2017.03.002.

Cavalcanti, F. D. O., Gutierrez, C. E. C., & Figueiredo, J. F. M. (2021). Determinants of banking spread in Brazil and the effects of the Basel III Agreement. *Economia Aplicada*, *25*(2), 293–322. doi: 10.11606/1980-5330/ea173229.

Central Bank of Brazil (BACEN) (2018a). Resolution Nº 4.656. Available from: https://normativos.bcb.gov.br/Lists/Normativos/Attachments/50579/Res_4656_v7_P.pdf (accessed 30 September 2023).

Central Bank of Brazil (BACEN) (2018b). Resolution Nº 4.657. Available from: https://normativos.bcb.gov.br/Lists/Normativos/Attachments/50580/Res_4657_v1_O.pdf (accessed 30 September 2023).

Central Bank of Brazil (BACEN) (2019). Announcement BACEN n. *33*, 455. Available from: https://www.bcb.gov.br/estabilidadefinanceira/exibenormativo?tipo=Comunicado&numero=33455 (accessed 30 September 2023).

Chiu, I. (2016). Fintech and disruptive business models in financial products, intermediation and markets — policy implications for financial regulators. *Journal of Technology Law and Policy*, *21*(1), 55–112.

Das, P., Verburg, R., Verbraeck, A., & Bonebakker, L. (2018). Barriers to innovation in large financial services companies. *European Journal of Innovation Management*, *21*(1), 96–112. doi: 10.1108/ejim-03-2017-0028.

Dhar, V., & Stein, R. M. (2017). Fintech platforms and strategy. *Communications of the ACM*, *60*(10), 32–35. doi: 10.1145/3132726.

Di Castri, S., & Plaitakis, A. (2018). Going beyond regulatory sandboxes to enable FinTech. *Innovation in Emerging Markets*.

Fenwick, M., McCahery, J. A., & Vermeulen, E. P. M. (2019). The end of 'corporate' governance: Hello 'platform' governance. *European Business Organization Law Review*, *20*(1), 171–199. doi: 10.1007/s40804-019-00137-z.

Ferreira, L. T. (2018). Digital transformation: Applications and limitations of its use in insurance companies in Brazil. Master's dissertation, FGV.

Forcadell, F. J., Aracil, E., & Ubeda, F. (2020). Using reputation for corporate sustainability to tackle banks digitalization challenges. *Business Strategy and the Environment*, *29*(6), 2181–2193. doi: 10.1002/bse.2494.

Foss, N. J., & Saebi, T. (2017). Fifteen years of research on business model innovation: How far have we come, and where should we go?. *Journal of Management*, *43*(1), 200–227. doi: 10.1177/0149206316675927.

Freitas, V. S. (2020). Parsifal. Available from: https://vitorfs.com/projects/parsifal/ (accessed 31 August 2023).

Frempong, J., Chai, J., Ampaw, E. M., Amofah, D. O., & Ansong, K. W. (2019). The relationship among customer operant resources, online value co-creation and electronic-word-of-mouth in solid waste management marketing. *Journal of Cleaner Production*, *248*, 119228. doi: 10.1016/j.jclepro.2019.119228.

Gama, F., & Magistretti, S. (2022). Artificial intelligence in innovation management: A review of innovation capabilities and a taxonomy of AI applications. *Journal of Product Innovation Management*, 1–36.

Gfrerer, A., Hutter, K., Füller, J., & Ströhle, T. (2020). Ready or not: Managers' and employees' different perceptions of digital readiness. *California Management Review*, *63*(2), 23–48. doi: 10.1177/0008125620977487.

Gradillas, M., & Thomas, L. D. W. (2023). Distinguishing digitization and digitalization: A systematic review and conceptual framework. *Journal of Product Innovation Management*, *42*, 1–32. doi: 10.1111/jpim.12690.

Greenwood, M. (2007). Stakeholder engagement: Beyond the myth of corporate responsibility. *Journal of Business Ethics*, *74*(4), 315–327. doi: 10.1007/s10551-007-9509-y.

Gustafsson, A., Kristensson, P., & Witell, L. (2012). Customer co-creation in service innovation: A matter of communication?. *Journal of Service Management*, *23*(3), 311–327. doi: 10.1108/09564231211248426.

Hays (2022). Digital transformation in the financial sector. Available from: https://www.hays.com.br/conteudo/blog-dicas-de-carreira/insights/transformacao-digital-no-setor-financeiro (accessed 30 September 2023).

Henfridsson, O., & Yoo, Y. (2014). The liminality of trajectory shifts in institutional entrepreneurship. *Organization Science*, *25*(3), 932–950. doi: 10.1287/orsc.2013.0883.

Hie, B. P. (2019). Impact of transforming organizational culture and digital transformation governance toward digital maturity in Indonesian banks. *International Review of Management and Marketing*, *9*(6), 51-57. doi: 10.32479/irmm.8785.

Ismail, M., Khater, M., & Zaki, M. (2017). Digital business transformation and strategy: What do we know so far? Cambridge service alliance. Working Paper.

Kane, G. C. (2017). Don't forget the basics in digital transformation. *MIT Sloan Management Review*.

Kiel, D., Arnold, C., & Voigt, K. I. (2017). The influence of the industrial internet of things on business models of established manufacturing companies – a business level perspective. *Technovation*, *68*, 4–19. doi: 10.1016/j.technovation.2017.09.003.

Kujala, J., Sachs, S., Leinonen, H., Heikkinen, A., & Laude, D. (2022). Stakeholder engagement: Past, present, and future. *Business and Society*, *61*(5), 1136–1196. doi: 10.1177/00076503211066595.

Kutnjak, A. (2021). COVID-19 accelerates digital transformation in industries: Challenges, issues, barriers and problems in transformation. *IEEE Access*, *9*, 79373–79388. doi: 10.1109/access.2021.3084801.

Lee, I., & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons*, *61*(1), 35–46. doi: 10.1016/j.bushor.2017.09.003.

Lee, C.-H., Wang, D., Desouza, K. C., & Evans, R. (2021). Digital transformation and the new normal in China: How can enterprises use digital technologies to respond to COVID-19?. *Sustainability*, *13*, 18. doi: 10.3390/su131810195.

Leone, D., Schiavone, F., Appio, F. P., & Chiao, B. (2021). How does artificial intelligence enable and enhance value co-creation in industrial markets? An exploratory case study in the healthcare ecosystem. *Journal of Business Research*, *129*, 849–859. doi: 10.1016/j.jbusres.2020.11.008.

Mansell, R. (2021). Adjusting to the digital: Societal outcomes and consequences. *Research Policy*, *50* (9), 104296. doi: 10.1016/j.respol.2021.104296.

McAfee, A., & Brynjolfsson, E. (2018). *Machine, platform, crowd: Harnessing our digital future*. New York: WW Norton & Company.

Noland, J., & Phillips, R. (2010). Stakeholder engagement, discourse ethics and strategic management. *International Journal of Management Reviews*, *12*(1), 39–49. doi: 10.1111/j.1468-2370.2009.00279.x.

Oliveira, G. S., Bomfin, L. R., & Franklin-franklin, M. A. (2019). Fintech financial services: A services 4.0 approach. (2019). XLIII Meeting of ANPAD.

Palmié, M., Wincent, J., Parida, V., & Caglar, U. (2020). The evolution of the financial technology ecosystem: An introduction and agenda for future research on disruptive innovations in ecosystems. *Technological Forecasting and Social Change*, *151*, 119779. doi: 10.1016/j.techfore.2019.119779.

Peltier, J. W., Dahl, A. J., & Swan, E. L. (2020). Digital information flows across a B2C/C2C continuum and technological innovations in service ecosystems: A service-dominant logic perspective. *Journal of Business Research*, *121*, 724–734. doi: 10.1016/j.jbusres.2020.03.020.

Phillips, R.A. (1997). Stakeholder theory and a principle of fairness. *Business Ethics Quarterly*, *7* (1), 51–66.

Ramdani, B., Binsaif, A., Boukrami, E., & Guermat, C. (2020). Business models innovation in investment banks: A resilience perspective. *Asia Pacific Journal of Management*, *39*, 1–28. doi: 10.1007/s10490-020-09723-z.

Richardson, R. J. (2017). *Social research: Methods and techniques* (Vol. 4). Atlas: São Paulo.

Sashi, C. M. (2021). Digital communication, value co-creation and customer engagement in business networks: A conceptual matrix and propositions. *European Journal of Marketing*, *55*(6), 1643–1663. doi: 10.1108/ejm-01-2020-0023.

Sorensen, A. (2021). Facilitating value: How organizations deploy resources in social media-based brand communities. *Journal of Business Research*, *136*, 678–694. doi: 10.1016/j.jbusres.2021.07.058.

Tongur, S., & Engwall, M. (2014). The business model dilemma of technology shifts. *Technovation*, *34* (9), 525–535. doi: 10.1016/j.technovation.2014.02.006.

Van Klyton, A., Tavera-Mesias, J.-F., & Castaño-Muñoz, W. (2021). Value co-creation and co-destruction in the first cashless society in Colombia – a middle range theory approach. *Information Technology and People*, *35*(4), 1298–1325. doi: 10.1108/itp-05-2020-0273.

Venkatesh, R., Mathew, L., & Singhal, T. (2019). Imperatives of business models and digital transformation for digital services providers. *International Journal of Business Data Communications and Networking*, *15*(1), 105–124. doi:10.4018/IJBDCN.2019010107.

Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, *122*, 889–901. doi: 10.1016/j.jbusres.2019.09.022.

Vial, G. (2021). Understanding digital transformation: A review and a research agenda. *Managing digital transformation*, 13–66.

Viglia, G., Pera, R., & Bigné, E. (2018). The determinants of stakeholder engagement in digital platforms. *Journal of Business Research*, *89*, 404–410. doi: 10.1016/j.jbusres.2017.12.029.

Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading digital: Turning technology into business transformation*. Boston: Harvard Business Press.

World Economic Forum (2016). White paper digital transformation of industries: In collaboration with accenture. *Digital Enterprise*, 45. Available from: http://reports.weforum.org/digital-transformation/wp-content/blogs.dir/94/mp/files/pages/files/digital-enterprise-narrative-final-january-2016.pdf (accessed 30 September 2023).

Zott, C., & Amit, R. (2010). Business model design: An activity system perspective. *Long Range Planning*, *43*(2-3), 216–226. doi: 10.1016/j.lrp.2009.07.004.

Further reading

Ansoff, H. I. (1977). *Business strategy.* São Paulo: McGraw-Hill do Brazil.

Basel Committee on Banking Supervision (2010). Basel III: A global regulatory framework for more resilient banks and banking systems. *Bank for International Settlements*, December 2010 (rev June 2011).

Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress and prosperity in a time of. Brilliant technologies*. New York: W.W Norton and Company.

Feder, C. (2018). The effects of disruptive innovations on productivity. *Technological Forecasting and Social Change*, *126*, 186–193. doi: 10.1016/j.techfore.2017.05.009.

Llorente, J. A. (2016). Digital transformation. *Uno Magazine*. Available from: https://www.revista-uno.com.br/wpcontent/uploads/2013/09/160520_UNO24_BR.pdf (accessed 30 September 2023).

Luthra, S., & Mangla, S. K. (2018). Evaluating challenges to industry 4.0 initiatives for supply chain sustainability in emerging economies. *Process Safety and Environmental Protection*, *117*, 168–179. doi: 10.1016/j.psep.2018.04.018.

Showmetech (2021). FoodTech movement: Event brings together the most innovative Brazilian startups in the food segment. Available from: https://corporate.showmetech.com.br/foodtech-movement-evento-traz-as-startups-brasileiras-mais-inovadoras-do-segmento-alimenticio/ (accessed 30 September 2023).

Stegmann, P., Nagel, S., & Ströbel, T. (2023). The digital transformation of value co-creation: A scoping review towards an agenda for sport marketing research. *European Sport Management Quarterly, 23*(4), 1221–1248. doi: 10.1080/16184742.2021.1976241.

Visconti, R. M. (2021). *FoodTech and AgriTech startup valuation* (pp. 363–390). Springer Books. Startup Valuation.

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