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FinTech-enabled digital transformation for sustainable performance: the strategic role of dynamic capabilities

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The role of technological innovation as a key part of corporate strategy has become increasingly prominent in the literature. There is a lack of empirical research examining the role of FinTech adoption in firms' sustainable performance through internal transformation processes and strategic capabilities. The present study is based on the Resource-Based View (RBV) and the Dynamic Capabilities framework (DC); it suggests a theoretical model that evaluates the mediating role of Digital Transformation (DT) and the moderating role of the Dynamic Capabilities (DC) on the association between FinTech Adoption (FTA), and Firm Sustainable Performance (FSP). Primary data were collected on a sample of 277 companies based in Riyadh Saudi Arabia and then apply to Partial Least Squares Structural Equation Modeling (PLS-SEM) to establish the test hypothesized relationships. Findings demonstrate that there is a strong positive relationship between FinTech adoption and digital transformation, and that the concluding has a downstream constructive influence on the sustainable performance regarding economic, social, and environmental aspects. Furthermore, DC become an important positive moderator, which intensifies the influence of DT on sustainable performance; companies with strong adaptive and reconfiguring capabilities obtain better sustainability results of their DT activities. Combining the concept of FTA and DC into the unified strategy of sustainability, this work contributes to the theoretical discourse and can be applied in practice by organizations who want to use digital technologies in an attempt to achieve sustainable development in contemporary markets.

KEYWORDS

digital transformation (DT), dynamic capabilities (DC), dynamic capabilities theory (DCT), FinTech adoption (FTA), firm sustainable performance (FSP), Kingdom of Saudi Arabia (KSA), resource-based view (RBV)

1 Introduction

The high rate of financial technologies development has essentially redefined the operational modalities of the organizations, reconfigured the structure of financial ecosystems, and transformed competitive dynamics. FinTech adoption, including blockchain solutions, digital payment infrastructure, financial analytics powered by artificial intelligence, and cloud-based systems, has become a strategic imperative to organizations that aim to achieve efficiency and transparency and sustainability in the long term (Badroun et al., 2025). However, existing literature is largely questioning FinTech in terms of financial performance and technological

innovation, which gives little theoretical explanation of how FinTech adoption creates sustainable performance through organizational transformation.

Considering the Resource-Based View (RBV), the adoption of FinTech can be interpreted as a strategic technological resource that increases the capabilities of firms. The RBV is based on the assumption that valuable, rare, inimitable and non-substitutable resources are the determinants of sustained competitive advantage. Based on this, FinTech systems enhance the accuracy of the data, financial transparency, risk management, and operational efficiency, which makes them the key organizational resources (Yu et al., 2024). The present research considers the dynamic capabilities (DC) theory to explain how these technological resources can be translated into sustainable results. The DC framework anticipates the capability of a firm to integrate, build, and rebuild internal and external competencies in environments that are ever changing within a short period of time. The simple adoption of FinTech does not yield sustainable outcomes per se; companies need to simultaneously build digital-transformation potential to facilitate workflow redesign, business-model renewal, and more sophisticated decision-making processes (Raza and Ali, 2024). The theoretical rationale to be put forward in the given case is that FinTech provides the technological basis, digital transformation is the capacity-building pathway, and sustainable performance is the strategy delivery (Yuan, 2025).

Although there has been increasing academic interest in understanding the intersection of FinTech and sustainability, empirical studies rarely combine these constructs into a concocted theoretical model (Alshdaifat et al., 2024). Many studies discuss digital transformation and sustainability separately, without outlining the processes by which systems enabled by FinTech can cause sustainable results (Wan et al., 2023; Chen and He, 2025; Zhang and Huang, 2024). This investigation attempts to fill this gap by introducing a theoretical-grounded conceptualization that connects the adoption of FinTech and sustainable performance based on digital transformation. To be more precise, this study has three contributions. To begin with, it reinvents the understanding of FinTech adoption as a strategic technological asset and not an operational tool. Second, it positions digital transformation as an intermediate ability of firms that allows them to utilize FinTech resources effectively. Third, it contributes to the development of sustainability scholarship by demonstrating how an organizational performance over the long-term is based on technological transformation. The theoretical synthesis obtained is a systematic foundation of generating hypotheses and the conceptual model offered.

FinTech is gaining recognition as an innovation driver, it does not have an automatic impact on the sustainability of performance. The use of technology in itself is not a guarantee of strategic renewal or long-term value creation. Instead, the effectiveness of FinTech will depend on the ability of a firm to undertake the mobilization of higher-order organizational capabilities that coordinate and reorganize the digital assets (Huang et al., 2023). This paper will be informed by the dynamic capabilities theory and assumes that the adoption of FinTech is a technological stimulus that triggers sensing, seizing, and reconfiguring processes, which subsequently drive the digital transformation and underpin the sustainable performance. Based on that, FinTech, digital transformation, and sustainability are not viewed as similar constructs but rather as correlated constituents of a process that runs on mechanisms.

2 Literature review

2.1 Theoretical background: resource-based view (RBV) and dynamic capabilities (DC)

This article relies on the RBV and DC to explain how the utilization of technology is associated with sustainable organizational performance. According to RBV, the better performance of firms is achieved when they have resources that are valuable, rare, inimitable, and non-substitutable. In modern digital economies, technological assets, financial technologies, digital platforms and data analytics systems, are strategic resources that can create a competitive advantage (Zhou et al., 2025). However, RBV focuses more on the ownership of resources, and does not provide much explanation on how companies adjust these resources in a fast-changing environment. DC is an extension of RBV as it addresses the ability of a firm to incorporate, develop and restructure internal and external competences based on environmental turbulence. DC help organizations to feel the opportunities, exploit those opportunities in the form of strategies and modify their resource base accordingly (Najaf et al., 2024).

FinTech adoption is one of the key technological assets in this interconnected framework and can initiate organizational change. DT refers to the process in which this resource transforms organizational structures, processes and business models. The final result of these changes is firm sustainable performance, which is a manifestation of long-term socio-economic and environmental value creation. DC also determine the effectiveness of digital transformation as a way of achieving sustainable performance since they help organizations to constantly adapt and optimize the changes brought by technology (Huang et al., 2025). Therefore, RBV explains why the adoption of FinTech can generate potential value, whereas the dynamic capabilities theory justifies how companies can transform this potential into the enduring performance in the conditions of uncertainty in the technological and environmental context.

2.2 Important constructs and conceptual foundation

2.2.1 FinTech adoption (FTA)

The topic of FTA denotes the usage and application of advanced financial technologies to enhance financial services and financial transactions and decision-making processes. Mobile payments, blockchain platforms, financial tools powered by artificial intelligence, cloud-based financial platforms, and digital banking solutions are all types of technologies under consideration (Ayodeji et al., 2024; Guang-Wen and Siddik, 2022). The adoption of FinTech reduces transaction cost, increases efficiency, and enables real-time financial management by automating financial operations and increasing the level of data transparency. Especially, the implementation of FinTech is a conceptually different concept as compared to digital transformation. Although DT is a wide-ranging organizational transformation of a company toward the usage of digital technologies in various aspects, FinTech implementation is focused on financial operations. However, the financial systems are central to the operations of an organization since they determine the allocation of resources, investment choices and risk management (Guang-Wen and Siddik, 2023; Yuan, 2025). Therefore, the implementation of financial technologies may serve as an engine of larger-scale digital transformation programs.

2.2.2 Digital transformation (DT)

DT can be described as the incorporation of digital technologies into every sphere of an organization, which has radically changed the way it conducts its business and provides value. It includes business model modifications, organizational culture, business process, and business with customers. DT is not just a change in technology usage, it is a shift in strategy toward a data-driven decision-making process, automation, and digital innovation. Within the framework of this paper, digital transformation can be understood as the process that allows the effects of FinTech use on organizational performance to be produced (Harris and Wonglimpiyarat, 2023). Financial technologies offer technological basis and digital transformation is an expression of the organizational change that is needed to utilize such technologies to their advantage. DT will help companies to use resources more efficiently, enhance their operational efficiency, and minimize environmental impact.

2.2.3 Firm sustainable performance (FSP)

FSP refers to the capacity of an organization to succeed in the long-term term by the means of balancing economic viability with environmental responsibility and social accountability (Lyu et al., 2025). It includes the results of resource efficiency, less impact on the environment, satisfaction of the stakeholders, and long-term profitability. Innovative technologies may be utilized to promote sustainability through effective management of the resources and reduction of the waste levels as well as facilitate the environmentally friendly practices. The transformation of digital form can especially enable efficient operations, lessen the use of physical resources, and support sustainable business models (Drnevič and Kriauciunas, 2011). Thus, the sustainable performance is an essential product of technology-driven change in organizations.

2.2.4 Dynamic capabilities (DC)

DC are the ability of a firm to integrate, create, and re-organize both internal and external resources as a reaction to the changing environments. The capabilities help organizations to respond to the technological disruptions, regulatory pressures, and changing market conditions. The conceptualization of dynamic capabilities in this paper is as a modulating element, which determines the effectiveness of digital transformation in enhancing sustainable performance (Jangid et al., 2025; Quttainah and Ayadi, 2024). Companies allowing themselves to be highly dynamic can constantly improve digital projects, align them with strategic objectives, and address the arising sustainability challenges. On the other hand, companies that have limited strengths might find it difficult to trace the impacts of digital transformation activities into a real performance change.

2.3 Hypothesis development

2.3.1 FinTech adoption and digitalization

The implementation of FinTech implies advanced digital tools that can redesign financial activities and organizational work. Digitizing financial transactions, increasing data accessibility, and making them automatable, FinTech solutions challenge organizations to update their infrastructure and processes (Sayari et al.,

2025). This transformation in technology can frequently require more widespread organizational transformation, such as process redesign, skilled workforce, and the adoption of digital systems within organizations. In terms of the RBV, FinTech technologies are the strategic resources that could help organizations to innovate. But to realize their full potential, they need to change the organizational level (Gancarczyk et al., 2022). Therefore, the use of FinTech is expected to become a major force of digital transformation.

H1: The use of FinTech has a positive effect on digital transformation.

2.3.2 Digital transformation and firm sustainable performance

Digital transformation is capable of significantly increasing sustainable performance by increasing the efficiency of operations, decreasing the use of resources and allowing friendly practices toward the environment. Automated processes reduce paper consumption and energy usage, and data analytics can be used to effectively manage the supply-chain and minimize wastage. Besides, online platforms make it possible to conduct remote activity, reducing the physical infrastructure and travel costs. Digitally transformed organizations are in a good position to react to sustainability policies and stakeholder demands (Sun et al., 2024; Chi, 2025). On that note, the digital transformation will bring a positive contribution to the sustainable performance of the firm.

H2: Digital transformation has a positive effect on firm sustainable performance.

2.3.3 Adoption of FinTech and sustainable performance of firms

The direct benefits of using FinTech can be seen in the improvement of the sustainable performance of the firm, associated with financial efficiency, transparency, and strategic decision-making. The advanced financial technologies help organizations to automate their payment systems, minimize transaction costs, increase risk management, and optimize capital allocation which are all enhanced in the long run stability of the economy. Besides, digital financial solutions enhance accountability and transparency, helping firms to meet regulatory obligations, as well as to increase stakeholder confidence (Zaid et al., 2025). Considering the perspective of the resource-based view, FinTech systems are an important technological resource that can create competitive advantage due to increase the effectiveness of operations, as well as the support of innovative business practices. Although the digital transformation of the organization may not be comprehensive yet, the implementation of FinTech tools can help achieve sustainability by minimizing the paper-based operations, enhancing financial inclusion, and promoting environmentally friendly business (Jonathan and Kuika Watat, 2020). As a result, organizations that actively embrace FinTech solutions are in better positions to attain high sustainable performance than organizations that depend on the traditional financial systems.

H3: The adoption of FinTech has a positive and significant association with firm sustainable performance.

2.3.4 Mediating of digital transformation

Even though the adoption of FinTech offers technological opportunities, it is unlikely to have a direct effect on sustainable performance. Financial technologies can be used to advantage the organization depending on their integration into organizational processes and strategies. This is the process of integration which takes the input of technology and converts it into organizational outputs, which is digital transformation. Digital transformation offers the firm an opportunity to enhance efficiency, transparency, and environmental performance through FinTech systems, which improves sustainable performance (Hidayat-ur-Rehman, 2025; Maqsood et al., 2025). Thus, the digital transformation is likely to mediate the relationship between adoption of FinTech and sustainability of performance of firms.

H4: Digital transformation mediated the relationship between Fintech adoption and firm sustainable performance.

2.3.5 Dynamic capabilities: moderating role

The success of digital transformation to enhance sustainable performance lies in the ability of an organization to change and upgrade its strategies. Dynamic capabilities can help companies redesign their resources, adapt to the technological environment, and align digital activity with sustainability goals. Organizations that have strong dynamic capabilities are capable of using digital transformation to adopt new solutions, streamline operations, and sustainability over time. On the contrary, companies with low capabilities might not be able to maintain the fruits of digital initiatives (Boratyńska, 2019; Michaelis et al., 2021). Therefore, dynamic capabilities will make the positive correlation between digital transformation and sustainable performance stronger.

H5: Dynamic capabilities moderate the effect between digital transformation and firm sustainable performance.

2.4 Conceptual framework

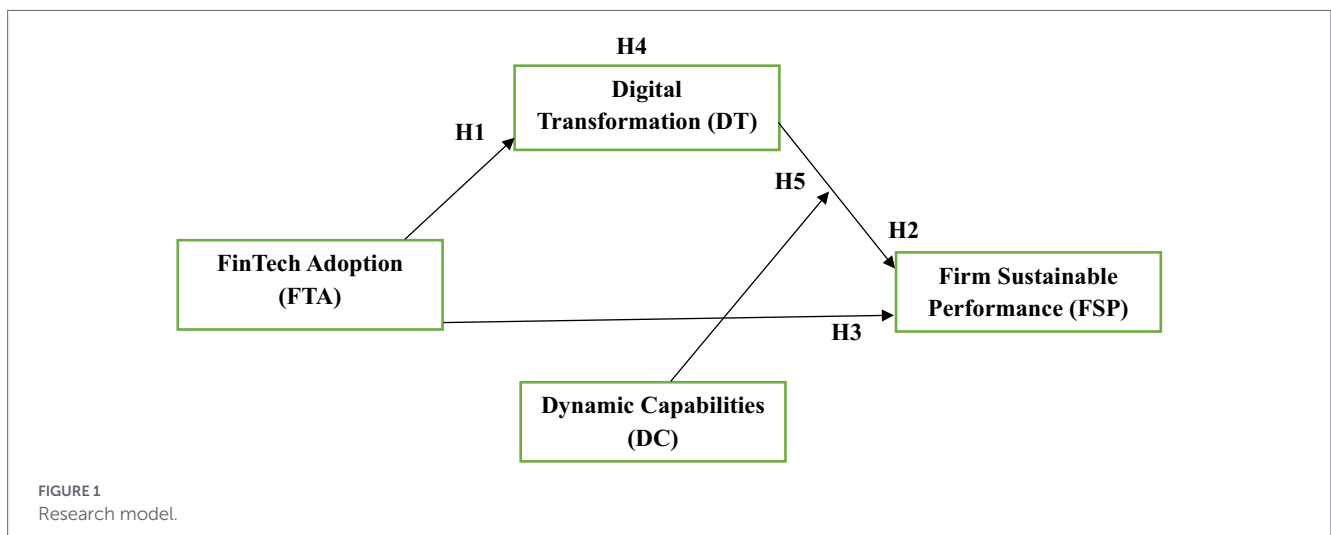
With the help of the RBV and the DC, the proposed study creates the model, according to which the FTA becomes a strategic

technological resource that facilitates DT. Digital transformation, in its turn, increases the sustainability of the performance of the firms through efficiency improvement, innovation improvement, and environmental responsibility. This process can be strengthened through dynamic capabilities that can help organizations constantly readjust and optimize digital initiatives (Cosa and Torelli, 2024). The conceptualization of sustainable performance assumes a series of resource-transformation-capability process whereby adoption of technology results in organizational change amplified by adaptive capabilities (see Figure 1).

3 Methodology

The researcher used the quantitative research approach to test the relationships among variables. The main research question was to understand how the adoption of FinTech helps firms to be sustainable under the influence of the digital transformation and how the connection between them is enhanced by DC. The survey-based method has been considered suitable, as it has the ability of collecting information on a large number of respondents, as well as, offering the statistical strength needed to test hypothesis. The target population included organizations operating in the financial, technology, and services industry in Riyadh, Kingdom of Saudi Arabia (KSA), a location where digital transformation and the use of FinTech are two emerging areas of economic modernization in Saudi Vision 2030.

The data were attained with the help of a professional market research agency, which has its headquarters in Saudi Arabia and is known as a company specializing in business surveys at the executive level and corporate studies. The agency has a large experience in carrying out academic as well as industry-specific research projects in financial, technological, and service sectors. The purposive sampling approach was used to make sure that only the highly familiar informants were involved. Sampling criteria were based on the following requirements (1) the respondents are required to be (2) in the managerial or senior executive positions, (3) directly involved into the digital transformation, financial decision-making or sustainability initiatives, (4) at least 3 years of tenure in the firm to ensure that the person is well acquainted with the strategic practices at the firm level.



The process of verification carried out a set of verification steps to ensure that the respondents are authentic and that the data is also integrity-driven. To ensure that only the corporate email domains were used as a way of verifying their organizational affiliation, first, only corporate email domains were used. Second, job titles of the respondents and company details were cross-validated with the professionally available profiles (LinkedIn and corporate websites). Third, the investigation questions were included in the very beginning of the questionnaire to ensure the participation of the respondent in the strategic decision-making process related to FinTech adoption and digital transformation. Total 400 questionnaires were distributed, irrelevant answers which were not verified or those whose information was inconsistent with the organization were eliminated in the cleaning process. The final data are 277 responses with 69.25% response rate. Such rigorous measures made sure that the final sample consisted of competent managers and top executives who have a significant understanding of digital and sustainability strategies of their firms.

The analysis of the data was carried out with the help of Partial Least Squares Structural Equation Modelling (PLS-SEM) executed in SmartPLS 4.0. In our survey, we assessed the effect of common method bias (CMB) in two complementary statistical approaches. The first step entailed the single-factor test that was done by Harman, in which all observed variables were inputted in an exploration factor analysis without rotation. The unrotated factor thus obtained was an explanation to less than 30% of the total variance which showed that no single factor was dominating the variance structure. The second step involved the specification of a common latent factor (CLF) model in a structural equation modeling (SEM) model. In this model, there was the introduction of an extra latent construct to which all items were loaded onto their substantive constructs. The standardized factor loading comparison of the baseline measure model and the CLF model did not show meaningful differences, indicating that CMB did not have any significant effects on the parameter estimates. Taken together, the findings of such analyses can be seen as the empirical evidence that the problem of common method bias does not represent a significant risk to the validity of our findings.

Multi-item scales that were used to operationalize all constructs were based on already validated studies but had some slight contextual modification to suit the Saudi business environment. The measurement items related to FinTech adoption would be limited to the application of financial technologies only. In their turn, the categories of items that related to digital transformation include digitalizing the entire firm, automation of processes, and the innovation of business models, which do not mention FinTech tools explicitly. This differentiation maintains the distinctiveness of constructs and in the process, consolidates the theoretically mediated structure.

Despite the fact that Dynamic Capabilities Theory defines capabilities as a process that evolves over time and is path-dependent, empirical studies have operated on them by mostly relying on cross-sectional perceptual measures that measure organizational routines and strategic orientations at one point in time. Although dynamic capabilities are accrued over time, they are externalized in the form of visible practices of opportunity sensing, resource re-configuration and strategic renewal. As a result, a cross-sectional survey measure will give a fairly proximate measure of the level of capability deployment that is presently implemented in companies. Nevertheless, these instruments indicate the existence and strength of capability routines and not their time-based formation. The current research therefore conceptualizes dynamic capabilities as

higher-order organizational competencies which are evident at a specific level of development but not completely longitudinal processes (see Table 1).

4 Data analysis

The demographic profile of respondents in this study as summarized in Table 2. There were 277 qualified questionnaires received in organizations in Riyadh, the Kingdom of Saudi Arabia (KSA). The demographic information was analyzed to provide the background of the respondents and to ensure that the sample suits the overall picture of the population involved in the projects of FinTech adoption and digital-transformation. It has been analyzed that 68.2% of the respondents were males and 31.8% were females. In terms of the age, 21.7% were aged 20–30 years, 42.6% aged 31–40 years, 24.9% aged 41–50 years and 10.8% aged above 50 years. Such data indicate that most of the participants were mid-career professionals, which corresponds to the level of manager that should make decisions concerning FinTech and sustainability practices. With regard to the education level, 19.1% had a bachelors, 58.8% had a master, and

TABLE 1 Measurement items example.

Construct	Sample item(s)	Source(s)
FTA	Our organization actively integrates FinTech applications (digital payments, blockchain, financial analytics) into core operations. FinTech tools have enhanced the efficiency of our financial management processes.	Gomber et al. (2018); Puschmann (2017)
DT	Our firm continuously leverages digital technologies to enhance business processes and customer experience. DT initiatives have improved our operational agility and innovation.	Vial (2019); Jonathan and Kuika Watat (2020)
FSP	Our organization's operations contribute positively to economic, environmental, and social sustainability. Our firm's sustainability initiatives have improved resource efficiency and stakeholder satisfaction.	Chen et al. (2015); Paulraj (2011)
DC	Our firm is capable of reconfiguring resources in response to market or technological changes. We possess strong sensing and learning capabilities to anticipate digital disruptions.	Teece (2007); Pavlou and El Sawy (2011)

TABLE 2 Demographics of the respondents.

Demographic variable	Category	Frequency (n)	Percentage (%)
Gender	Male	189	68.2
	Female	88	31.8
Age (years)	20–30	60	21.7
	31–40	118	42.6
	41–50	69	24.9
	Above 50	30	10.8
Education level	Bachelor's degree	53	19.1
	Master's degree	163	58.8
	Doctorate/professional degree	61	22.1
Designation	Department manager	85	30.7
	Senior executive	76	27.4
	Middle manager	63	22.7
	Other/technical staff	53	19.2
Firm size	<250 (SMEs)	92	33.2
	≥250 (large firms)	185	66.8
Industry	Financial/banking	106	38.3
	Technology/service	81	29.2
	Manufacturing/other	90	32.5
Experience	<5 years	71	25.6
	6–10 years	130	46.9
	11–15 years	56	20.2
	>15 years	20	7.3

22.1% had an advanced degree in technology and management, which is highly educated and can appeal to technology and managerial constructs.

Regarding organizational status, 30.7% of the respondents were department managers, 27.4% senior executives, 22.7% middle managers and 19.2% other supervisory or technical positions. This distribution shows that majority of the respondents held roles with considerable power to make decisions in digital and financial processes in their organizations. On the organizational size, 33.2% of the firms had less than 250 employees but 66.8% of the companies were large and had over 250 employees. This combination will guarantee a balanced outlook on the use of FinTech among companies with different scales of operations.

In regards to the type of industry, 38.3% of the respondents were in the financial and banking industry, 29.2% in the technology-based service firms, and 32.5% in the manufacturing and diversified industries. The distribution indicates extensive coverage of key areas in Saudi Arabia, which are on the frontline in undertaking digital transformation and sustainability goals. Lastly, with regards to organizational tenure, 25.6, 46.9, 20.2, and 7.3% of the respondents indicated less than 5 years, 6–10 years, 11–15 years, and more than 15 years, respectively, in their present organizations. The main presence of the mid to long tenured respondents help to increase the credibility of the information given. On the whole, the demographic population reveals a complex and experienced group of respondents, who could provide valid data on the FinTech adoption, digital transformation, and sustainability practices within the Saudi Arabian business setting.

4.1 Reliability and construct validity

The data in Table 3 show that reliability and convergent validity levels of all constructs in the study were satisfactory. The alpha values were 0.737 to 0.860 which is greater than the recommended 0.70 to show a good internal consistency of the items of each construct (Nunnally and Bernstein, 1994). This observation implies that all measurement items are reliable to measure their respective latent constructs. Equally, composite reliability was between 0.761 and 0.873, which in turn are also above the suggested minimum value of 0.70 (Hair et al., 2021). Composite reliability represents a better estimate of internal consistency than Cronbach's alpha because individual item loadings are considered, and the findings on this matter are that the constructs are highly internally coherent. As far as convergent validity is concerned, the constructs showed an average variance extracted (AVE) of more than 0.50 (between 0.524 and 0.642). A value of AVE greater than 0.50 demonstrates that over 50% of the variation in the indicators is accounted by the latent construct thus establishing sufficient convergent validity (Fornell and Larcker, 1981). That is, the items that measure each construct have a high enough percentage commonality of variance, which proves that the two items are tied to the same construct.

FTA had the highest reliability (Cronbach's 0.860; AVE 0.642) and the strongest reliability of the measurement items, which represent various dimensions of FinTech implementation in companies. DC and DT also demonstrated evidence of high reliability and validity, which supports the idea that the scales are appropriate to address the concept

TABLE 3 Reliability and construct validity.

Constructs	Cronbach's alpha	Composite reliability (rho_a)	Average variance extracted (AVE)
DT	0.759	0.761	0.532
DC	0.737	0.776	0.533
FTA	0.860	0.873	0.642
FSP	0.776	0.782	0.524

of organizational adaptability and the digital change processes. There was the acceptance of the reliability and convergent validity of FSP (0.776; 0.524), meaning that the three dimensions of sustainability (economic, social, and environmental) were reflected in the data consistently. In general, these findings confirm that none of the constructs falls below the recommended levels of internal consistency and convergent validity, which means that measuring model can be considered statistically valid and can be further subjected to the structural model analysis. The good reliability and validity of the constructs provide that the future paths relationship of FinTech adoption with digital transformation with dynamic capabilities and sustainable performance of the firm can be clearly interpreted.

4.2 Discriminant validity

Table 4 represents the discriminant validity of the data. The square root of the AVE values is larger than the inter-construct correlations in the row and column, respectively. This shows that each construct has a greater amount of variance with their indicators as compared to any other construct thus showing acceptable discriminant validity. As an illustration, the square root of the AVE of FTA is 0.801 and this is more than its associations with Digital Transformation (0.323), Dynamic Capabilities (0.148), and Firm Sustainable Performance (0.477). This observation justifies the uniqueness of the FinTech Adoption construct in comparison to the rest in the model. Likewise, the square root of AVE of DT represents an improved value of 0.729 as opposed to its associations with DC (0.284), FinTech adoption (0.323), and firm sustainable performance (0.708) indicates that there is a distinct dimension of digital innovation processes reflected by the digital transformation. Though the correlation of FSP and DT (0.708) is relatively high, the square root of its AVE (0.724) is slightly larger, which meets the Fornell Larcker criterion and represents a reasonable level of discriminant validity between the two constructs. This higher correlation can be explained by the fact that those firms that experience greater rates of digital transformation are supposed to exhibit better outcomes of sustainable performance.

DC construct has also depicted a suitable discriminant validity wherein the square root of its AVE (0.730) is even higher in comparison with its relationships with other of the constructs such as digital transformation (0.284) and FinTech adoption (0.148). It means that, though DC is disappointingly linked to the possibility of the firm to adjust and restructure resources, it is still empirically different to digital transformation processes and integration of FinTech. In a nutshell, the Fornell Larcker findings affirm that all the latent constructs in the research have adequate discriminant validity whereby the constructs of the model are not measuring the same thing. This gives an assurance that the relationships, which are being tested in the structural

TABLE 4 Discriminant validity—Fornell Larcker.

Constructs	DT	DC	FTA	FSP
DT	0.729			
DC	0.284	0.730		
FTA	0.323	0.148	0.801	
FSP	0.708	0.179	0.477	0.724

model capture unique and conceptually different dimensions of FTA, DT, DC, and FSP.

The HTMT ratios assessed the Table 5 for discriminant validity. All the HTMT values are below the conservative cut of 0.85, thus proving sufficient construct distinctiveness. These results give more evidence of discriminant validity than is given by the conventional Fornell-Larcker criterion.

In addition to the conventional evaluation of the path significance, effect sizes (f^2) were calculated in order to measure the strength of the structural relationships. The findings indicated that the f^2 of 0.02, 0.15 and 0.35 represent small, medium, and large effects, respectively. The correlation among digital transformation and firm sustainable performance had a high effect size, and the correlation among FinTech adoption and digital transformation had an average effect size. A small-to-moderate effect size was found to be the direct effect of FinTech Adoption on Sustainable Performance of the Firm, which proves the notion that digital transformation is the most salient predictor in the structural model (see Table 6).

The blindfolding process was used to test the predictive relevance of the model. Q^2 values greater than zero indicate predictive relevance. The digital transformation and firm sustainable performance all had positive Q^2 values, which show that the model has good predictive power. These results support pragmatic and foresight validity of the suggested framework (see Table 7).

4.3 Structural model assessment

The results of the structural model are shown in Figure 2, which shows the proposed relationships between FTA, DT, DC, and FSP. Its model shows both direct and indirect pathways that were examined in the research, and also the moderating influence of dynamic capabilities. The structural model shows that there is a positive and statistically significant relationship between FTA and DT, with a standardized path coefficient of $\beta = 0.323$. This observation indicates that financial technologies adoption can complement the efforts by a firm toward digital transformation by fostering automation, real-time data processing, and customer-oriented digital services. Companies that proactively pursue FinTech will therefore have increased chances to incorporate digital tools in the business processes and thus help in the process of modernization of operations and elevate the ability to innovate. DT in turn has a positive and significant association on FSP, and its path coefficient is 0.648. This correlation adds credibility to the fact that organizations that successfully go through the digital transformation process record improved economic, social, and environmental performance. Digitally transformed corporations are thus at a better position of optimizing resources, improving operational efficiency and minimizing waste using smart technologies which eventually is linked to sustainability purposes.

FTA also positively influence the FSP (= 0.274), even though the strength of the indirect influence through digital transformation is

TABLE 5 Discriminant validity—HTMT ratios.

Constructs	DT	DC	FTA	FSP
DT				
DC	0.41			
FTA	0.47	0.22		
FSP	0.79	0.26	0.58	

TABLE 6 Effect size (f^2).

Structural path	β	f^2	Effect size interpretation
FTA → DT	0.323	0.118	Small-to-medium
DT → FSP	0.648	0.402	Large
FTA → FSP	0.274	0.086	Small
DC × DT → FSP	0.074	0.018	Very small

TABLE 7 Predictive relevance (Q^2).

Endogenous construct	R^2	Q^2	Predictive relevance
DT	0.104	0.062	Small predictive relevance
FSP	0.577	0.381	Large predictive relevance

much stronger. This indicates that even though FinTech adoption can be a source of firm performance, it is not entirely directly connected to its digital transformation. That is, FinTech develops the technological base, and digital transformation focuses this base on the real sustainability results. The indirect relationship between FTA → DT → FSP supports the mediating role of DT, in which the DT is an important process linking the adoption of FinTech to the sustainable performance. This means that companies that use FinTech technologies should go through a wider digital transformation process to optimally bring the sustainability benefits.

DC is a moderating variable that is used in the model to shape the relationship between the DT and the FSP. The interaction relationship shown by the moderation path (0.074) is positive, which suggests that the stronger the dynamic capabilities of a firm, the more it tends to convert the digital transformation initiatives into the lasting growth of gains. This also means that digital transformation in itself might not ensure sustainability unless companies also create flexible and adaptive dynamic capabilities. In addition, the values of R^2 that are contained in the latent variables denote the explanatory power of the model. DT has a value of 0.104, which is the R^2 value showing that 10.4% of the variance of DT is captured by FTA. FSP has R^2 (0.577), which indicates that 57.7% of the variance in the sustainability performance of firms is jointly described by FTA, DT, and DC. Chin (1998) further reports that R^2 of 0.26, 0.13 and 0.02 will be interpreted as large, moderate and weak rates of predictive accuracy respectively, therefore an R^2 of 0.577 will be interpreted as a large rate of predictive accuracy in the model. The indicator loadings are well above the acceptable item reliability level of 0.70. As an example, FTA has been

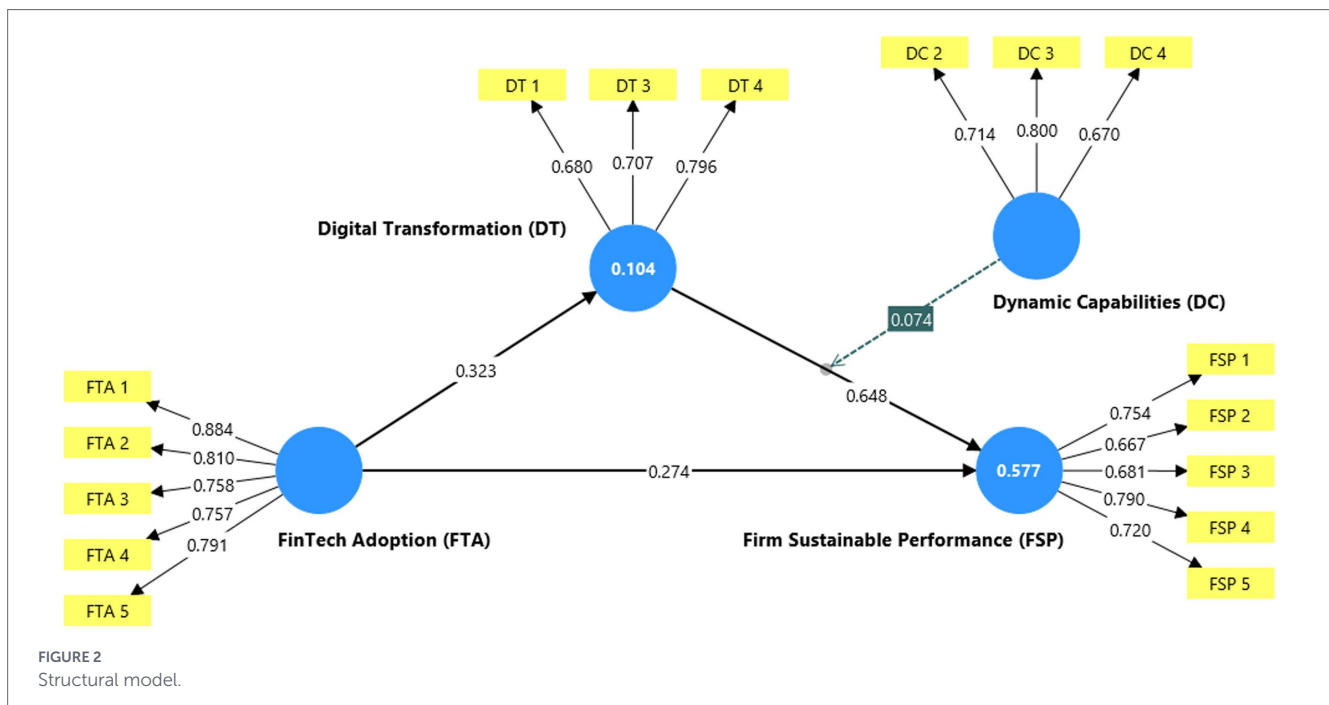
shown to have a loading of 0.757 to 0.884 and DT has loading that varies between 0.680 and 0.796, which proves that all the constructs do represent what they are intended to represent. Likewise, the loadings of FSP are ranging between 0.667 and 0.790 and loadings of DC are ranging between 0.670 and 0.800, which are satisfactory levels of measurement quality of all constructs. In general, Figure 2 supports the hypothesized model and confirms the theoretical framework that was proposed in this research.

5 Discussion

The results of the work are in line with and further the recent literature that explores the relationship between FinTech, digital transformation, and sustainability outcomes. Continuing on the previous studies (Jonathan and Kuika Watat, 2020; Verhoef et al., 2021), we notice that the digital transformation is positively related to the sustainability of firms on the economic, social, and environmental levels. Unlike the antecedent studies, in which DT and sustainability are viewed as parallel constructs, our analysis places DT as a mediating organizational process between the adoption of FinTech and the results of sustainability. Furthermore, the fact that, unlike previous studies (Zhou et al., 2025), our study empirically demonstrates the connection between the introduction of digitalization and sustainability via the systematic theoretical framework of the RBV and DC. This integrative lens not just explains why digital technologies should become the factor in enhancing sustainability, but also how companies should convert the investments in technology into the effects of performance over time.

5.1 Expanding the resource-based perspective via digital dynamic capabilities

The RBV provides a strong platform on which the understanding of how valuable, rare, inimitable, and non-substitutable (VRIN) resources create competitive advantage can be understood; however, it has been criticized as having a relatively inertial orientation, especially in fast-moving digital landscapes. Having access to technological opportunities like FinTech infrastructure is not sufficient to achieve the benefit in the long-term unless companies are able to adapt and re-organize the resources at a continuous pace. This research paper builds on the RBV by adopting dynamic capabilities as an additional theoretical perspective. Although the RBV outlines the strategic resources that the firms have, dynamic capabilities explain how the firms renew, coordinate, and restructure the resources in reaction to the turbulence in the environment (Teece, 2007). The adoption of FinTech in our framework is a strategic technological resource (RBV logic), and digital transformation and dynamic capabilities are an order of organizational processes that enable the successful implementation and re-organizing of these resources (DC logic). The moderating value of dynamic capabilities empirically proves that technological resources are not sufficient, but the sustainability value of digital transformation depends on sensing, seizing, and reconfiguring capabilities of firms (Kraus et al., 2022). By so doing, the study brings the RBV into the next step of simply the possession of resources, to a more dynamic resource-orchestration approach, relevant especially in digital ecosystems that are FinTech-based.



5.2 Contextualizing the findings: Saudi Arabia and West Asia vs. western economies

On the one hand, the basic theoretical assumptions of both the RBV and the DC are generally applicable, it is necessary to admit that the contextual conditions may adjust the strength and shape of relationships, which are revealed in the empirical research. Saudi Arabia, along with the wider West Asian context, differs significantly with most western environments in regard to digital adoption patterns, institutional development, institutional governance, and existing cultural patterns. To start with, the Vision 2030 of Saudi Arabia along with a set of complementary governmental policies have boosted the pace of the digital transformation and adoption of FinTech in the country, often with the help of the collaboration between the state and the business sector, and with the support of national strategic plans. This is unlike the situation in the West wherein digital transformation is mainly market-oriented as well as driven by competitive forces. Therefore, the influence of DC on the transformation of FinTech adoption into sustainable performance will be stronger in Saudi Arabia, where strategic consistency with the Saudi agenda and quick organizational transformation are the key drivers.

Second, the West Asian markets tend to have concentrated industry structures, which are characterized by giant family conglomeration and state-owned enterprises, unlike the diversified competitive environment of the West. The significance of sensing and reconfiguration is heightened by such concentration; it is true that operating in such economies means that firms are forced to make decisions through a top-down process, confronted with legacy systems to deliver digital strategies. In comparison, Western companies can rely more on decentralized innovation processes. Thirdly, the institutional and regulatory conditions are very different. Regulatory sandboxes and developed FinTech ecosystems are the hallmark of the Western economies, with the United Kingdom and the European Union being two examples that have encouraged experimentation and learning. The new regulatory frameworks in Saudi Arabia are becoming more

supportive of FinTech, but, at the same time, the current regulatory progress is at the early phase of the development, which can affect the risk perceptions and the technology adoption patterns of firms. These differences assume that the theoretical connections between technological resources, dynamic capabilities, and sustainability outcomes might be stronger and more focused differently in different regions.

Finally, the managerial decision-making in the areas of innovation and sustainability depends on cultural dimensions such as power distance and uncertainty avoidance. Top-management commitment and capability reconfiguration can exert even more impact on the sustainability results in the West Asian contexts, which feature stronger power distance and long-term orientation than in more individualistic cultures of the West.

It is necessary to underline the fact that, even though the suggested framework is based on the theory of DC, which, in its turn, is process-focused, the presented evidence is not that causal. The cross-sectional type of design is capable of capturing the perceived capability implementation, digital transformation, and sustainable performance of firms at one point of time. Thus, the findings are consistent with the hypothesized sequential mechanism but should be viewed as evidence of theoretical associations as opposed to demonstrating the fact of temporality. To have a full view of the evolutionary process of capabilities and their long-term effect on the final performance outcomes, longitudinal research would be needed.

5.3 Incremental explanatory value of the RBV-DC integration

Though previous studies have involved adoption of FinTech and firm performance either by the RBV or the DC view, the paper presented makes a contribution to the literature by presenting a combination of both perspectives, thus providing a more elaborate explanatory perspective. The RBV explains the strategic significance of FinTech as a valuable and rare technological asset, but does not clarify why companies with similar digital investments have dissimilar sustainability returns (Vial, 2019). This study fulfills the gap in the

resource-performance gap that has been determined in previous studies by means of integrating DC that facilitates the transformation of FinTech resources into effective digital transformation, which are mediated by sensing, seizing, and reconfiguring processes of FinTech resources. Moreover, the integration shifts the analytical emphasis of the former competitive advantage to adaptive sustainability, and defines sustainable performance as the product of ongoing organizational renewal, and not merely holding resources. Lastly, the framework anticipates the contextual contingencies in which digital transformation has been converted into excellent ESG performance by laying down dynamic capability strength as a boundary condition. As a consequence, instead of applying FinTech adoption, the digital transformation, and sustainable performance theoretically as parallel constructs, the integrated RBV-DC framework outlines them as sequential and interdependent phases in a resource-capability-transformation-performance mechanism which elucidates sustainability outcomes in a more detailed and theoretically-oriented manner.

6 Conclusion

This study explored the interrelationships among FTA, DT, DC, and FSP. The findings indicate that FTA enhances DT, which subsequently leads to improved FSP. Achieving Vision 2030 requires organizations to focus on long-term sustainable outcomes. Organizations in Saudi Arabia are increasingly prioritizing the adoption of financial technologies to improve performance outcomes.

6.1 Practical and theoretical implications

The results indicate that FinTech can only produce sustainable performance when its implementation is integrated into larger-scale digital change projects. The proposed mediating framework contributes to the development of the existing theoretical frameworks by focusing on the organizational mechanisms that are needed to transform technological adoption into quantifiable sustainability benefits. In response to criticism whereby the RBV is seen as a viewpoint that is static, the findings disclose that just having resources in FinTech is not sufficient; companies need to cultivate sensing, seizing, and reconfiguring as well to achieve sustainable performance. The study shifts the source of competitive advantage to the coordination of resources, therefore, providing a more dynamic view on competitive advantage in the fast-changing digital environments by illustrating the moderating effect of dynamic capabilities.

Practically, organizations are encouraged not to make FinTech acceptance a mere technological update. Rather, FinTech programs should be integrated into digital transformation programs that include process redesign, integration of data into business models and business model innovation. The achievement of strategic alignment ensures a higher chance of sustained performance results of the technological investments made. In addition, companies are encouraged to nurture the dynamic capabilities by establishing dynamic leadership in digital strategy, developing cross-functional teams focused on innovation, developing the digital skills continuously, and developing an adaptable organizational framework. The ability to feel opportunities, pick and restructure resources makes the digital transformation work more sustainable in the long run.

To policymakers, especially in Saudi Arabia and similar emerging economies, regulatory innovation, the expansion of digital infrastructure and the introduction of capacity-building programs to SMEs can magnify the effective transformation of digital investments into a long-term economic growth.

6.2 Limitations and future research

Using cross-sectional data limits the possibility of tracking the time-based development of dynamic capabilities. Future research with longitudinal or panel data designs would provide more credible results on causality and allow discussing the issue of creating capabilities and their resultant effect on sustainable performance in the long term. Also, qualitative or mixed-method designs can offer more microlevel information about the nature of dynamic capabilities and how these capabilities are institutionalized among firms over time. Through the ability to take advantage of longitudinal methodologies, the future studies will be able to better match the empirical dynamism with the dynamism hypotheses of the dynamic capabilities theory, and thus make more robust causal inferences.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

Ethical approval was not required for the study involving humans in accordance with the local legislation and institutional requirements. Written informed consent to participate in this study was not required from the participants or the participants' legal guardians/next of kin in accordance with the national legislation and the institutional requirements.

Author contributions

MT: Writing – review & editing, Resources, Conceptualization, Funding acquisition, Writing – original draft, Project administration, Investigation, Methodology, Supervision, Validation, Software, Formal analysis, Data curation, Visualization.

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Conflict of interest

The author(s) declared that this work was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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