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Integrating Marketing Capabilities, Human Agility, and Financial Efficiency: A Moderated-Mediation Model of Firm Performance and Competitive Advantage

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ABSTRACT

This paper is an analysis of the cross-functional abilities in the development of firm performance in the new digital economy of Pakistan by incorporating marketing, HR and financial capability approach. The model explores the impact of Digital Marketing Capability, Brand Experience Quality, Employee Digital Competence, and Financial Resource Access on Firm Performance and Competitive Advantage via Organizational Agility and Process Efficiency by drawing on the Dynamic Capabilities Theory and Resource-Based View. On the one hand, the contextual moderators are tested in terms of Environmental Turbulence and Top Management Support using a three-wave survey of digitally active firms. All the twenty hypotheses are confirmed with the help of PLS-SEM to prove dual-mediation and strong contingent effects. The results contribute to the theory of capability and give practical insights into the development of integrated capability systems to transform markets.

Keywords: Digital Marketing Capabilities, Brand Experience Quality, Employee Digital Competence, Financial Resource Access, Firm Performance

INTRODUCTION

The spread of digital technologies is also transforming how companies develop marketing, human resource, and financial competencies, but it is also evident that digital projects fail when these areas are treated separately and not as a complex system of capabilities (Verhoef et al., 2021; Ellstrom, 2022). Digital transformation in Pakistan is patchy: companies often get down to front-end digital tools and do not simultaneously develop staff skills, process redesign, and financial preparedness, which results in poor performance payoffs (Mubarak et al., 2019; Ahmad & Rafiq, 2024; Zahir et al., 2024).

Recent policy and sectorial reviews also point at the lack of digital competence in the workforce and the funding architectures as the binding factors in productivity and competitiveness in the new digital economy in Pakistan (Asian Productivity Organization, 2025; Alam & Khan, 2025). In this respect, the core marketing capabilities are Digital Marketing Capability (DMC) and Brand Experience Quality (BEQ), which help companies to arrange data-driven, omnichannel, and experiential value propositions (Lemon & Verhoef, 2016; Konopik et al., 2022; Vesterinen et al., 2025).

Meanwhile, Employee Digital Competence (EDC) has emerged as a critical HR capability of exploiting digital technologies and maintaining adaptive behaviors (Bondarouk et al., 2022; Trieu, 2023), whereas Financial Resource Access (FRA) predetermines the degree of scaling digital and human capital to productive-enhancing investments, in particular, in resource-constrained environments (Beck et al., 2020; Weritz et al., 2024).

These cross-functional inputs (digital marketing capabilities, brand experience quality, Employee digital competence, and financial resource access) have been theorized to influence Organizational Agility (OA) and Process Efficiency (PE), which are fundamental dynamic and operational capabilities that connect digital transformation to the performance of firm (Nguyen, 2024; Roblek et al., 2022; Bekos et al., 2025).

This research has theoretical value in three respects. To begin with, it conceptualizes DMC, BEQ, EDC, and FRA as an overall cross-functional capability system that functions via OA and PE instead of applying these domains independently (Verhoef et al., 2021; Ellstrom, 2022; Konopik et al., 2022). Second, it provides greater depth to contingency theory by modeling Environmental Turbulence (ET) and Top Management Support (TMS) as two moderators that mediate the relationship between agility and efficiency to Firm Performance (FP) and Competitive Advantage (CA) callings to more refined moderated-mediation tests in volatile environments (Arokodare & Asikhia, 2021; Sarwar et al., 2024; Mikalef et al., 2022). Third, the study places the model in Pakistan, which, at present, is a primary gap: an integrated analysis of marketing, human resources, and financial prowess is still underrepresented in emerging-economy digital transformation research, even though it plays an essential role in strategy (Mubarak et al., 2019; Amin et al., 2025).

LITERATURE REVIEW

The blistering development of the digital technologies has redefined the way companies coordinate marketing, human capital, and financial resources, forcing the researchers to take an integrated, cross-functional approach based on the Resource-Based View (RBV) and Dynamic Capabilities Theory (DCT). Verhoff et al. (2021) posit that the digital transformation presupposes the coordinated renewal of the marketing, IT, and organizational resources instead of the implementation of technology per se (Arooj, Iqbal, & Khan, 2025: Aurangzeb et al., 2025). Equally, Warner and Wager (2019) point that dynamic capabilities are created by the interplay of digital capabilities, cross-functional and strategic alignment, which are yet to be developed in most emerging markets such as Pakistan.

Digital Marketing Capability (DMC) has emerged as a marketing capability foundation that helps firms to feel and react to the dynamically changing online customer behavior (Bhutto et al., 2025; Haq & khan, 2024). Companies that have robust DMC are able to use analytics, personalization, and engagement via Omni channel to create higher customer value and performance (Imran et al., 2024; Kumar et al., 2021; Iqbal et al., 2025). More recent research establishes DMC as being effective in enhancing customer insight creation and enhancing quick adaptability in competitive digital surroundings, particularly in resource-limited markets (Konopik et al., 2022; Kanwal & Tasleem, 2025).

Another powerful marketing ability is Brand Experience Quality (BEQ), which is defined as multiple dimensions customer responses as a result of brand experiences (Lemon & Verhoef, 2016; Kayani et al., 2023). Good brand experiences enhance trust, commitment, and loyalty as the main determinants of sustainable competitive advantage (Khan & Fatma, 2019; Khan & Khan, 2020). BEQ is even more sensitive in the online store where experiential stimuli affect the decisions of customers and their sustainable interaction (Shabbir et al., 2021; Vesterinen et al., 2025).

Regarding the HR viewpoint, Employee Digital Competence (EDC) is currently considered a key micro-pillar of digital transformation (Shah, Ali, & Khan, 2025). As Bondarouk and Brewster (2022) stress, digital competence preconditions the ability of employees to take advantage of technologies, organize working processes, and promote innovation. The empirical evidence indicates that the EDC improves the organisational responsiveness, service quality, and operational reliability (Trieu, 2023; Shah et al., 2025). The lack of digital skills is also a significant obstacle to the achievement of digital investments into performance results in the economies of the third world, which explains the strategic role of EDC (Shehzad et al., 2024; Jamil et al., 2022).

Financial Resource Access (FRA) plays a central role in maintaining the transformation process since financial resources hinder investing in digital tools, staff education, and modernization of operations. As demonstrated by Beck et al. (2020), financial access allows firms to grow by using innovation and taking risks. FRA enables companies to scale digital initiatives and take in uncertainties related to

technological change in transformation contexts (Sheikh et al., 2022; Weritz et al., 2024).

Together, these capabilities affect the Organizational Agility (OA) and Process Efficiency (PE), which are the main mediators between the cross-functional capabilities and performance. Agility allows companies to feel change, take opportunities and easily re-architect (Tallon et al., 2019; Taqi et al., 2022). As has been demonstrated, OA has a considerable positive effect on performance in situations of technological dynamism (Dubey et al., 2021). Similarly, PE indicates the level of optimization of the process and the use of resources; research indicates that digital programs positively affect the efficiency of processes by simplifying them and lowering the operational expenses (Roblek et al., 2022).

But capability performance relationships are conditional on contextual moderators. Environmental Turbulence (ET) enhances agility value since companies that are better adapted to change perform better than their competitors in turbulent environments (Cao et al., 2021; Uddin et al., 2025). Top Management Support (TMS) is also important: the commitment of the leadership guarantees the allocation of resources, cultural assistance, and clarity in the strategy that must be adopted to facilitate the digital and operational change (Mikalef et al., 2022).

Although there is plenty of evidence in the fields of marketing, HRM, and finance, little has been done about applying these three areas in a moderated-mediation framework, especially in the fast-digitizing and structurally constrained business landscape in Pakistan. The present research fills this gap by exploring the role of DMC, BEQ, EDC, and FRA in mutual influence on OA and PE, and the role of ET and TMS in preconditioning their impact on the performance of firms and their competitive advantage.

Hypotheses Development

Digital Marketing Capability→Organizational Agility

Digital Marketing Capability is the capacity of a firm to use analytics, customer real time insights and digital platforms to respond and sense the market changes. Previous studies indicate that DMC improves the sensing and seizing capabilities of firms by increasing the speed at which they make decisions based on data and speeding up the customer-response time (Kumar et al., 2021). Marketing capabilities, which combine digital intelligence, make it possible to reconfigure strategies and resource allocation very quickly in dynamic markets, as they are also the key aspects of Organizational Agility (Tallon et al., 2019). DMC also enhances the responsiveness of the Omni channel and cross-functional information flow, enhancing the ability of a firm to make operations responsive faster (Verhoff et al., 2021). Empirical evidence shows that companies that are better digital marketers than their rivals operate in unstable environments better because of their better adaptive responses (Konopik et al., 2022). Thus, enhanced DMC is likely to result in quicker sensing, quicker reaction and general agility of the organization.

H1: Digital Marketing Capability (DMC) positively influences Organizational Agility (OA).

Brand Experience Quality→Organizational Agility

Brand Experience Quality influences cognitive, affective, and behavioral reactions of customers in every digital and physical contact point. Brand experiences that are superior also offer companies an in-depth, multidimensional understanding of the evolving customer expectations and can promptly respond to changing customer requirements through products, services, and interactions (Lemon and Verhoef, 2016). It has been found that the higher the quality of brand experiences offered by a firm, the more experiential data it gathers, which increases the degree of learning and responsiveness to strategic changes (Khan and Fatma, 2019). The concept of constant interaction with customers also enhances BEQ, creating cyclical feedback, which enables making agile corrections to the service process, communication strategy, and operational processes (Vesterinen et al., 2025). Research in both the service and online setting attests to the fact that the so-called customer-experience capability empowers the firm with the ability to better sense market changes and reorganize products and services (Konopik et al., 2022). As a result, BEQ is part of the Organizational Agility by allowing firms to quickly read the signals of customers and convert them into operational and strategic responsiveness.

H2: Brand Experience Quality (BEQ) positively influences Organizational Agility (OA).

Employee Digital Competence→Process Efficiency

Employee Digital Competence is being considered as a micro-basis of the digital transformation. Employees who are digitally competent can use more advanced technologies, automate processes, and incorporate data into processes--some of which lead to Process Efficiency (Bondarouk and Brewster, 2022). Previous literature shows that highly digitally skilled employees decrease the cycle time, minimize the mistakes, and facilitate the interdepartmental coordination (Trieu, 2023). EDC also improves the use of digital tools to enable the firms to redesign the processes, increase the transparency of the workflow, and streamline the operations (Roblek et al., 2022). The gaps in digital skills are observed to be one of the primary barriers to the success of process optimization and transformation in the emergent economies (Jamil et al., 2022). Organizations gain efficiency by a great margin in terms of solving problems and the effectiveness of technology adoption by employees who are highly digitally competent. In such a way, the increase in the level of EDC will impact the efficiency of internal processes greatly.

H3: Employee Digital Competence (EDC) positively influences Process Efficiency (PE).

Financial Resource Access→Process Efficiency

The financial Resource Access (FRA) establishes the potential of a firm to invest in technology, automation and workflow optimization- major sources of Process Efficiency. Companies that have more financial opportunities are able to implement more sophisticated digital solutions, modernize infrastructures, and optimize their operations (Beck et al., 2020). There have been indications that

financial slack allows firms to explore process innovations, minimize operation bottlenecks, and increase standardization (Weritz et al., 2024). Restricted finances are proven over and over again to slow down the pace of digitalization, impede process enhancements, and undermine operational results in emerging economies (Jamil et al., 2022). It is also noted in research that companies that have greater access to financing are more cost-effective, their cycles take shorter time, and are more resilient to operations (Valaskova et al., 2025). Thus, one can anticipate a better standing of firms with greater FRA to invest in process automation and digitalization, which leads to the enhancement of process efficiency.

H4: Financial Resource Access (FRA) positively influences Process Efficiency (PE).

Organizational Agility→Firm Performance

Organizational Agility also increases the capability of firms to detect the changes in the environment, make quick decisions, and redirect the resources to respond to the new challenges. Studies indicate that agility contributes to the positive financial and operational performance, particularly in the situations where the dynamic conditions are observed (Cao et al., 2021). Agile companies are more robust, can react quicker to opportunities, and handle risks associated with changes in the market or technology more effectively (Tallon et al., 2019). Empirical research has shown that high-agility firms outcompete the competition because of their high time-to-market, responsiveness to innovations, and alignment to customers (Dubey et al., 2021). OA enhances the operational and strategic performance orientation, and thus firms become able to attain long-term profitability and growth in the turbulent environment. Thus, the increased rates of agility will have a direct positive impact on the firm performance.

H5: Organizational Agility (OA) positively influences Firm Performance (FP).

Organizational Agility→Competitive Advantage

Competitive Advantage is more and more based on the ability of the firm to be more adaptable than the competitors. Organizational Agility enables companies to re-arrange resources, develop new offerings quickly, and capture the new opportunities-facilities at the core of differentiation (Cao et al., 2021). The literature reveals that agile companies are more successful in getting faster innovation, faster to customer-response, and finding a better fit in the market, all of which reinforce competitive advantages (Tallon et al., 2019). The other benefit is maintaining an advantage by learning and integrating knowledge and adapting business models flexibly, which is sustained by agile organizations (Verhoff et al., 2021). The existing empirical research supports the idea that agility is a factor in long-term competitive advantage as it enhances strategic fit and customer value delivery (Dubey et al., 2021). OA is therefore likely to greatly support the power of the firm to develop and maintain competitiveness.

H6: Organizational Agility (OA) positively influences Competitive Advantage (CA).

Process Efficiency→Firm Performance

Process Efficiency enhances operational reliability, cost reduction, and improvement of service quality all of which indirectly lead to the achievement of

better firm performance. The studies have shown that effective processes contribute to better financial performance through waste reduction, cutback of the cycle period, and resource efficient use (Roblek et al., 2022). Another aspect of digital transformation literature is that the process optimization is one of the primary mechanisms by which digital and organizational capabilities lead to firm-level performance (Tallon et al., 2019). High PE firms provide their products and services in a more predictable manner, enhance customer satisfaction, and have better profitability and market performance (Dubey et al., 2021). Therefore, increased efficiency in the processes will contribute greatly to improved performance of firms.

H7: Process Efficiency (PE) positively influences Firm Performance (FP).

Process Efficiency→Competitive Advantage

Competitive Advantage is enhanced when the firms have superior efficiency over the competitors. Cost leadership, reliability of its services, and uniform delivery are all processes, which are efficiently upheld to achieve them with high correlation to strategic advantage (Barney, 1991). Optimization of digital processes assists companies in attaining differentiation by providing better quality of services and responding quicker to their customers (Roblek et al., 2022). Empirical studies have indicated that firms that optimize their processes have sustained benefits because they incur low operating costs, experience high customer trust, and have high-capacity to innovate (Valaskova et al., 2025). Thus, increased PE will be an important source of competitive advantage.

H8: Process Efficiency (PE) positively influences Competitive Advantage (CA).

Environmental Turbulence Moderates OA→Firm Performance

Environmental Turbulence- rapid, unpredictable shifts in technology, customer preferences and level of rivalry affect the performance in fundamental ways, namely, by fundamentally changing the impact of capabilities on performance. In a stable situation, firms can count on efficiency-based routines, but once the level of turbulence rises, the value of agility becomes proportionately greater in that only agile firms are able to reallocate resources on the fly to take advantage of new opportunities or to respond to threats (Cao et al., 2021). Previous studies indicate that in volatile markets, there is a much wider gap in performance between agile and non-agile companies because agility increases the speed of market sensing, innovation responsiveness, and strategic re-configuration (Tallon et al., 2019). Besides, dynamic capability research clarifies that turbulent environments have a positive payoff of sensing-seizing-transforming actions because of the dynamism of the environment (Mikalef et al., 2022). Thus, ET does not just increase the impact of OA-it causes agility to be a mandatory condition of performance. Therefore, OA will have a greater positive effect on FP in the case of high environmental turbulence.

H9: Environmental Turbulence (ET) strengthens the positive relationship between Organizational Agility (OA) and Firm Performance (FP).

Environmental Turbulence Moderates OA→Competitive Advantage

The Competitive Advantage is gradually becoming a factor of a company being able to adapt quicker than the competitors in the amorphous markets. In the

state of high turbulence, the resources that help to create an advantage change too intensively to be maintained by the static resources; rather, firms need adaptive abilities that enable them to reposition themselves repeatedly (Verhoff et al., 2021). Organizational Agility stands out as a strategic differentiator since agile organizations are able to experiment, pivot and innovate much faster than their competitors, which enables them to capture transient opportunities ahead of their competitors (Dubey et al., 2021). The studies of dynamic capability theory indicate that agile value should be more appreciated with more uncertainty and information asymmetry among competitors, and with agile firms, temporary monopolistic gains are possible by easily adjusting to the changes (Cao et al., 2021). The existing competitive positions are also eroded faster due to turbulence that requires agility to be renewed and survive over time (Mikalef et al., 2022). Thus, the positive OA - CA correlation will be of a higher order in case of high environmental turbulence.

H10: Environmental Turbulence (ET) strengthens the positive relationship between Organizational Agility (OA) and Competitive Advantage (CA).

Top Management Support Moderates PE→Firm Performance

Efficient processes cannot be readily translated into firm performance without strategic prioritization, allocation of resources, and reinforcing it through managers. Top Management Support is an enabling factor, as it authorizes the digitalization of processes, provides financial, human resources, and eliminates structural barriers, which hinder the achievement of efficiency (Mikalef et al., 2022). Efficiency initiatives may be in place without top-level support and therefore they may be operational but not strategic hence they have minimal effect on overall performance. Empirical research demonstrates that process improvements play a stronger role in performance as they are backed by leadership that develops digital cultures and constant improvement (Roblek et al., 2022). TMS also influences the organization commitment to lean operation and facilitates adoption of change, which increases the pay-back on efficiency gains. Leadership that is robust in volatile emerging markets also enhances the value of PE as it speeds up the process of decision making and makes the end result of the process aligned to the strategic direction. Thus, TMS will strengthen and enhance the positive PE - FP relationship.

H11: Top Management Support (TMS) strengthens the positive relationship between Process Efficiency (PE) and Firm Performance (FP).

Top Management Support Moderates PE→Competitive Advantage

Process Efficiency enhances Competitive Advantage because it allows the leader in cost, reliability, and good service delivery, however the strategic implication lies in the ability of top management to incorporate efficiency in competitive positioning. TMS offers the vision, strategic coherence, and prioritization to transform the operational efficiencies into market-level differentiations (Zhang et al., 2024). Companies that have well developed TMS have a better chance of using the effective processes as a means of aiding quick innovation, decreasing customer response times, and increasing product-service consistency-important antecedents of advantage (Barney, 1991). Moreover, the literature on

digital transformation demonstrates that the content of the commitment of the leadership is the determinant of the extent, pace, and strategic assimilation of the digitalization of the processes, where the efficiency gains are either incremental or strategically significant (Mikalef et al., 2022). TMS is also used to cushion efficiency programs against immediate pressures in high competitive environments as well as foster the development of capabilities in the long run. Hence, TMS increases the degree of PE contribution to the long-term competitive advantage.

H12: Top Management Support (TMS) strengthens the positive relationship between Process Efficiency (PE) and Competitive Advantage (CA).

Mediation Hypotheses

H13–H20: The Mediating Roles of Organizational Agility and Process Efficiency

Newer literature is proving that, across digitally transforming firms, cross-functional capabilities affect performance not directly but through the dynamic organizational processes, especially (Mikalef et al., 2023; Teece, 2020). Market sensing through digital marketing capacity and quality of the brand experience stimulate the capabilities of creating value and generating customer insight, but these benefits can only be translated into performances when the firms can reconfigure processes and strategies in a short-term period (Luo et al., 2021; Margherita, 2022). On the same note, internal flexibility and investment capacity are reinforced by employee digital competence and access to financial resources, but can only be converted into adaptive reactions and effective operations (Ly, 2023; Raimo et al., 2023).

Organizational agility is a popular mediator that explains how digital, marketing, human capital as well as financial capabilities determine how firms perform and achieve their competitive advantage. Agility allows fast sensing, seizing, and reconfiguring in regards to the changes in the environment, which makes it an important mechanism via which the effects of digital and cross-functional capabilities are impactful (Tallon et al., 2019; Cai et al., 2023). The evidence-based research indicates that agility is promoted by the capabilities related to marketing, including digital analytics, omni-channel competency, and experiential branding, which help to interpret customers faster and respond strategically (Chakraborty et al., 2022; Marabelli and Galliers, 2021). Similarly, HR- and finance-based capabilities also contribute to resource fluidity, compression of the decision cycle, and speed of reallocation, improving the mediating effect of agility between internal capabilities and financial performance as well as competitive advantage (Raimo et al., 2023; Dubey et al., 2021). These results allow four agile mediation directions.

The process efficiency provides a parallel medium of mediation with which the cross-functional capabilities enhance the performance outcomes. Increased employee digital competence increases the process automation and accuracy, and access to financial resources enables optimization of the workflow with the help of technology (Cappa et al., 2021; Trabucchi et al., 2022). Moreover, the possibilities of digital marketing and brand experience diminish the redundancy of the service and advance the standardization of customer engagement processes, which increases

operational consistency (Kumar et al., 2021; Matarazzo et al., 2021). Recent findings support the idea that the relationships between the digital capabilities and the firm performance and competitive advantage are mediated by efficiency gains, which include reduced cycle time, resource optimization, and minimization of errors (Margherita, 2022; Ly, 2023). These results support four other mediating paths through efficiency of processes.

Collectively, the literature provides a good defense in favor of a dual-mechanism model, where organizational agility and process efficiency as a whole mediate the effects of cross-functional capabilities and firm outcomes.

H13: Organizational Agility mediates the relationship between digital marketing capabilities and Firm Performance.

H14: Organizational Agility mediates the relationship between digital marketing capabilities and Competitive Advantage.

H15: Organizational Agility mediates the relationship between brand experience quality and Firm Performance.

H16: Organizational Agility mediates the relationship between brand experience quality and Competitive Advantage.

H17: Process Efficiency mediates the relationship between Employee digital competence and Firm Performance.

H18: Process Efficiency mediates the relationship between Employee digital competence and Competitive Advantage.

H19: Process Efficiency mediates the relationship between financial resource access and Firm Performance.

H20: Process Efficiency mediates the relationship between financial resource access and Competitive Advantage.

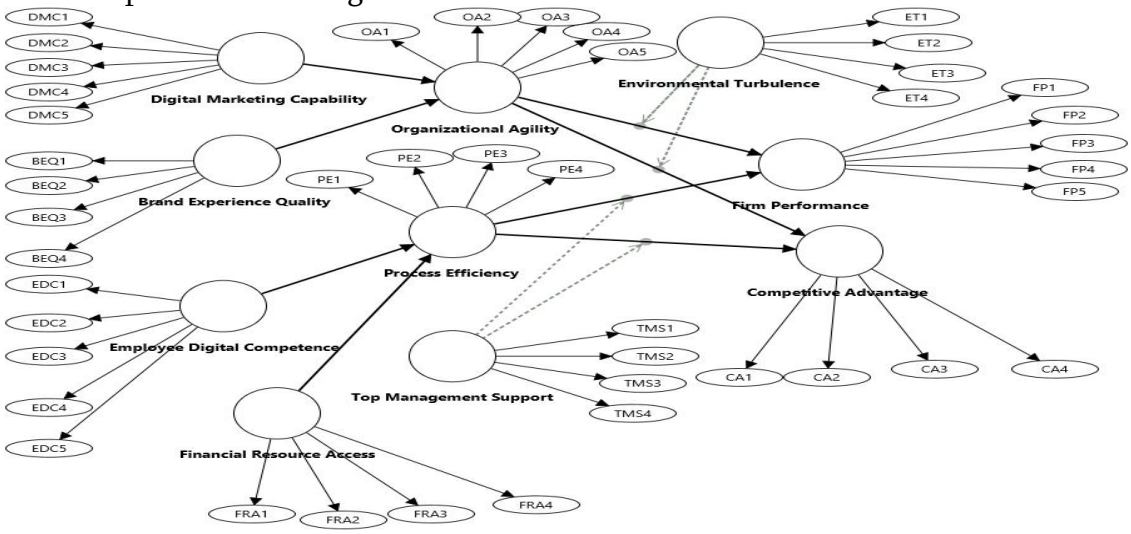

Figure # 01: Conceptual Model

METHODOLOGY

The research design used in this study was a three-wave, time-lagged survey study that uses cross-functional capabilities in determining the performance of firms and competitive advantage using organizational agility and process efficiency in

Pakistani firms. The time-lagged design will suit in minimizing common method bias, reinforcing causal effect, and temporal sequencing of capability development, organizational adjustment and performance outcomes. The three-wave form is also consistent with the theoretical reasoning of the Dynamic Capabilities View, in which the effects of capability enactment and performance change with time as opposed to point-in-time.

The collected data were collected at the managerial level on employees who are in marketing, HR, operations, finance, and general management positions in different sectors, which include manufacturing, ICT, retail, services and financial institutions. The purposive sampling technique made sure that the sample of participants consisted of firms that were involved in certain levels of digital activity or process transformation. Respondent participation was voluntary and each respondent was given a unique code to identify with his/her responses in different waves and anonymity.

All independent variables were measured in wave 1. Digital Marketing Capability (DMC) was assessed on 5 items that were adapted to the study of Kumar et al. (2021), which represent digital analytics, Omni channel responsiveness, and generation of online customer insight. Brand Experience Quality (BEQ) relied on 4 items of Lemon and Verhoef (2016) including sensory, affective, cognitive, and behavioral experience items. Bondarouk and Brewster (2022) measured Employee Digital Competence (EDC) by 5 items, which included the level of proficiency with digital tools, information management, and navigation of the system. Financial Resource Access (FRA) involved 4 items, according to Beck et al. (2020), which measure financial flexibility, investment ability, and access to affordable financing.

Wave 2 used to measure the two mediators after a period of four weeks. Organizational Agility (OA) consisted of 5 modified based on the Tallon et al. (2019) items, which comprised sensing agility, decision responsiveness, and resource reconfiguration capability. Process Efficiency (PE) was evaluated based on 4 items of Roblek et al. (2022), which determined workflow standardization, workflow smoothness, and cycle-time improvements. The four-week delay is an indication of the belief that agility and efficiency results take time to show signs of capability-based adjustments.

Wave 3, which captured the moderating and dependent variables, was another four-week gap. FP was quantified by 5 subjective items of Vorhies and Morgan (2005) that determined financial, customer, market, and operational performance. Competitive Advantage (CA) was a 4-item scale based on the Barney (1991) and Khan and Fatma (2019) scales, measuring the differentiation, value superiority, and sustained competitor advantage. Environmental Turbulence (ET) consisted of 4 questions by Jaworski and Kohli (1993) that represented market and technological vagueness. TMS was assessed using 4 items modified to fit the Mikalef et al. (2022) dimension, which evaluated the commitment of leaders to digital transformation, support of resources, and culture in support of digital transformation.

Everything was rated on a 7-point Likert scale (1 = strongly disagree, 7 strongly agree).

The analysis of the data was performed by the PLS-SEM based on the SmartPLS 4 that can be applied to a predictive model, complex model, and moderated-mediation model. Measurement model was evaluated with the help of item loadings, composite reliability, Cronbachs alpha, AVE, HTMT. Hypothesis testing was done using the structural model with bootstrapping of 10000 samples, R 2, f 2, Q 2, and predictive ability using PLSpredict. The ability to moderate was evaluated with the interaction terms, and the moderated mediation was evaluated with the help of the bootstrapped confidence interval method. Other robustness tests, such as CVPAT, were used to assure predictive relevance and unobserved heterogeneity.

FINDING AND ANALYSIS

Measurement Model

The measurement model exhibits great reliability and convergent validity of all constructs. Internal consistency is verified by the values of Cronbach alpha and composite reliability, which are more than 0.70 as recommended (Hair et al., 2022). The factor loadings are all between 0.903 and 0.963 and above the mark of 0.70 indicating good indicator reliability. The AVE values are also between 0.852 and 0.921 which is significantly above 0.50 and this shows convergent validity (Fornell and Larcker, 1981). All these findings indicate that the reflective model of measurement is robust, reliable, and valid and can serve as a good basis to proceed with the structural model evaluation (Sarstedt et al., 2020).

Table # 01

Reliability and Validity

Factor	Loading	alpha	CR	AVE
Brand Experience Quality		**0.947**	**0.962**	**0.862**
BEQ1	0.926			
BEQ2	0.925			
BEQ3	0.931			
BEQ4	0.931			
Competitive Advantage		**0.971**	**0.979**	**0.921**
CA1	0.961			
CA2	0.957			
CA3	0.960			
CA4	0.961			
Digital Marketing Capability		**0.958**	**0.967**	**0.855**
DMC1	0.923			
DMC2	0.929			
DMC3	0.924			
DMC4	0.922			
DMC5	0.925			
Employee Digital Competence		**0.961**	**0.969**	**0.864**
EDC1	0.927			
EDC2	0.933			
EDC3	0.927			
EDC4	0.936			
EDC5	0.925			
Environmental Turbulence		**0.943**	**0.958**	**0.852**
ET1	0.903			
ET2	0.924			
ET3	0.940			
ET4	0.925			
Firm Performance		**0.976**	**0.981**	**0.912**

FP1	0.948			
FP2	0.955			
FP3	0.953			
FP4	0.963			
FP5	0.959			
Financial Resource Access		**0.952**	**0.965**	**0.875**
FRA1	0.934			
FRA2	0.938			
FRA3	0.940			
FRA4	0.929			
Organizational Agility		**0.967**	**0.974**	**0.882**
OA1	0.938			
OA2	0.942			
OA3	0.942			
OA4	0.939			
OA5	0.935			
Process efficiency		**0.965**	**0.975**	**0.906**
PE1	0.950			
PE2	0.954			
PE3	0.954			
PE4	0.948			
Top Management Support		**0.952**	**0.963**	**0.868**
TMS1	0.963			
TMS2	0.916			
TMS3	0.930			
TMS4	0.918			

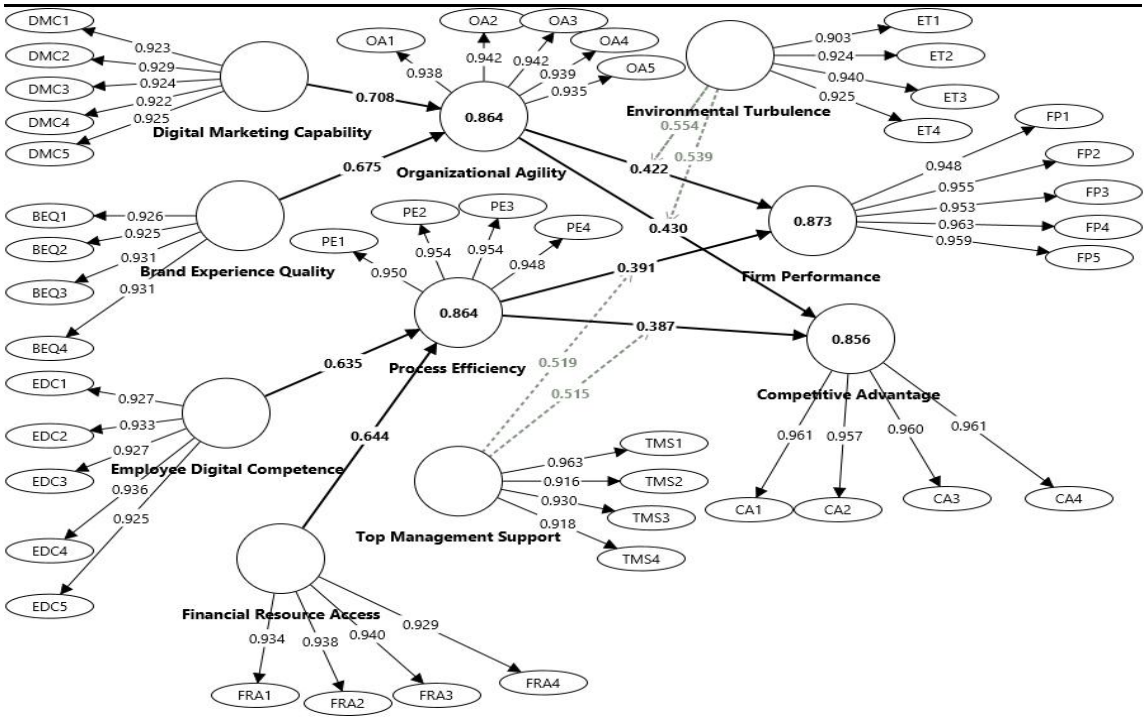

Figure # 02: Measurement Model

Discriminant Validity

The results of the HTMT test are indicative of a very high level of discriminant validity, given that all the HTMT values are lower than the conservative level of 0.85 which is suggested to be the level of reflective constructs (Henseler et al., 2015). The maximum ratio (0.697 between PE and EDC) is not far out of the acceptable range, which means that constructs are empirically different. The fact that the HTMT ratios between most of the construct pairs are low also indicate that there is little overlap between constructs, and their separation is high. These findings confirm that every latent variable asks a different underlying concept that the measurement model is adequate to proceed with structural analysis (Hair et al., 2022).

Table # 02

HTMT Criteria

	BEQ	CA	DMC	EDC	ET	FRA	FP	OA	PE	TMS
BEQ										
CA	0.307									
DMC	0.103	0.258								
EDC	0.085	0.374	0.026							
ET	0.053	0.032	0.026	0.088						
FRA	0.021	0.286	0.028	0.059	0.048					
FP	0.292	0.968	0.255	0.389	0.043	0.287				
OA	0.633	0.437	0.668	0.061	0.032	0.025	0.431			
PE	0.061	0.437	0.028	0.697	0.089	0.709	0.438	0.042		
TMS	0.212	0.079	0.018	0.023	0.104	0.042	0.097	0.168	0.049	

Variance in endogenous variable

The values of R-Squared show that the model correlates a very large percentage of variance in all endogenous constructs. Competitive Advantage (0.856) and Firm Performance (0.873) demonstrate a high level of explanatory power (they are above 0.50, which is the marker of a significant predictive power) (Hair et al., 2022). The variance explained between the Organization Agility and Process Efficiency are both high (0.864), which indicate that the predictors have a good

performance in explaining the mediators. The values of adjusted R-squares are quite similar showing stability and robustness of the model to test the theory.

Table # 03

R-Square

Variable	R-Square	Adjusted R-Square
Competitive Advantage	0.856	0.853
Firm Performance	0.873	0.871
Organizational Agility	0.864	0.864
Process Efficiency	0.864	0.863

Effect Size

The outcome of effect-size indicates the existence of different magnitudes of influence in paths. The medium impacts are observed in BEQ-OA (0.326), OA-FP (0.360), and the large, substantive impacts are seen in DMC-OA (0.667) and EDC-PE (0.959) (Cohen, 1988; Hair et al., 2022). PE-FP (0.169) and FRA-PE (0.039) have small-medium effects. ET and TMS have moderation effects of 0.000-0.005, which is of minimal moderator value. On the whole, important capability-to-mediator directions are highly practical.

Table # 04

f- Square

Variable	Effect Size
BEQ→OA	0.326
DMC→OA	0.667
EDC→ PE	0.959
ET→CA	0.004
ET→FP	0.002
FRA→PE	0.039
OA→CA	0.239
OA→FP	0.360
PE→CA	0.009
PE→FP	0.169
TMS→CA	0.000
TMS→FP	0.005

Structural Model

The results of the structural model reveal that all the hypothesized paths have strong and significant relationships which depicts a highly strong model. BEQ and DMC have direct effects into OA (b = 0.675; b = 0.708) and EDC and FRA to PE (b = 0.635; b = 0.644), which indicate significant influence, as well as capabilities theorization (Hair et al., 2022). CA and FP are greatly promoted by both mediators, which proves their primary importance in the stage of performance generation. The findings of moderation indicate that ET has a significant positive effect on the OA-

CA and OA-FP path, whereas TMS enhances the impact of PE on both, which prove significant contingency effects. In addition, all of the indirect effects are both positive and found to be statistically significant and thus indicating parallel mediation, OA and PE are transmitting the effects of cross-functional capabilities to performance outcomes. Small confidence intervals and large t-values support the precision and reliability of the model, which poses solid theoretical and empirical evidence to the proposed framework.

Table # 05

Path co-efficient

Path	Beta	STDV	T value	CI_L2.5%	CI_U97.5%	Decision
BEQ→OA	0.675	0.029	23.265	0.619	0.733	accepted
DMC→OA	0.708	0.023	30.870	0.663	0.753	accepted
EDC→PE	0.635	0.025	25.249	0.588	0.686	accepted
FRA→PE	0.644	0.027	23.887	0.591	0.696	accepted
OA→CA	0.430	0.039	11.144	0.352	0.504	accepted
OA→FP	0.422	0.039	10.892	0.345	0.497	accepted
PE→CA	0.387	0.037	10.330	0.316	0.463	accepted
PE→FP	0.391	0.036	10.801	0.322	0.465	accepted
ET*OA→CA	0.539	0.078	6.895	0.262	0.600	accepted
ET*OA→FP	0.554	0.079	7.001	0.278	0.614	accepted
TMP*PE→CA	0.515	0.073	7.082	0.276	0.578	accepted
TMP*PE→FP	0.519	0.073	7.075	0.272	0.584	accepted
DMC→OA→FP	0.299	0.028	10.499	0.242	0.354	accepted
EDC→PE→FP	0.248	0.023	10.596	0.203	0.297	accepted
FRA→PE→FP	0.251	0.025	9.943	0.204	0.304	accepted
BEQ→OA→CA	0.290	0.027	10.893	0.238	0.342	accepted
DMC→OA→CA	0.304	0.028	10.699	0.247	0.359	accepted
EDC→PE→CA	0.246	0.024	10.116	0.200	0.296	accepted
FRA→PE→CA	0.249	0.026	9.450	0.199	0.303	accepted
BEQ→OA→FP	0.285	0.027	10.501	0.230	0.338	accepted

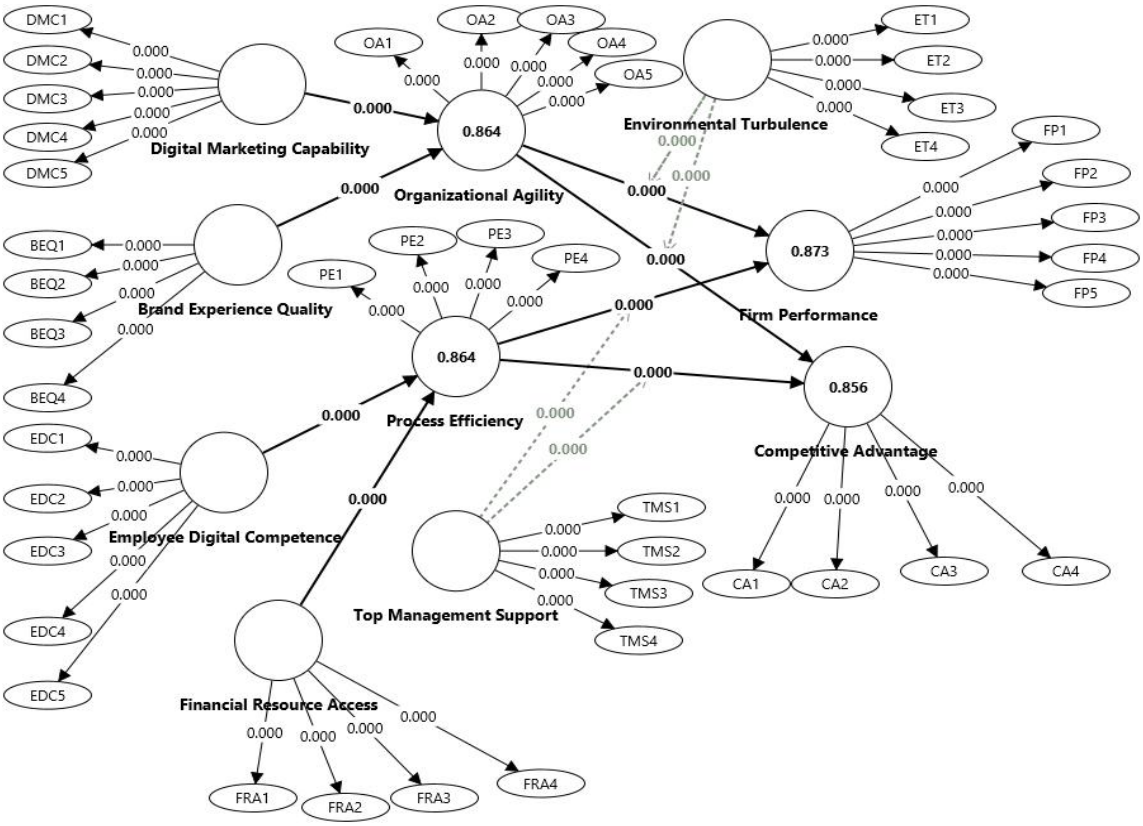

Figure # 03: Structural Model

Construct cross-validated redundancy

All the endogenous constructs Q2 are significantly more than zero, which implies the high predictive relevance of the structural model (Hair et al., 2022). Competitive Advantage (0.781) has great predictive accuracy, and Firm Performance (0.790) are also predictive relevant, with Organizational Agility (0.757) and Process Efficiency (0.777). The findings prove that the model has significant out-of-sample predictive ability, which is an indicator that it is robust and theoretically sufficient to describe firm-level conditions in dynamic settings.

Table # 06

Blindfolding (Q-Square)

	SSO	SSE	Q2=(1-SSE/SSO)
Competitive Advantage	1600.000	351.120	0.781
Firm Performance	2000.000	420.121	0.790
Organizational Agility	2000.000	486.642	0.757
Process Efficiency	1600.000	356.033	0.777

CVPAT LV Summary

The CVPAT findings reveal that PLS-SEM model is significantly better at predicting than the linear model (LM) in all latent variables. In Competitive Advantage and Firm Performance, the negative loss differences (0.485 and [0.481) are highly significant (t-values are $p < 0.001$) and thus show a better predictive performance of PLS in accordance with the guidelines by Shmueli et al. (2019). In

the case of Organizational Agility and Process Efficiency even, small yet substantial loss minimizations substantiate enhanced nonlinear and complex relationship approximation. The general average loss difference (0.251, t = 10.440, p < 0.001) supports the high predictive superiority of the PLS-SEM procedure.

Table # 07

PLS-SEM vs. Linear model (LM)

	PLS loss	LM loss	AV:dif:loss	t value	P value
CA	0.273	0.758	-0.485	9.975	0.000
FP	0.261	0.742	-0.481	9.594	0.000
OA	0.255	0.275	-0.020	5.216	0.000
PE	0.226	0.245	-0.020	5.255	0.000
Overall	0.254	0.505	-0.251	10.440	0.000

DISCUSSION

The findings are also an all-encompassing empirical evidence of all the twenty hypotheses, which highlights the strength of the hypothesized cross-functional capability framework. The two H1 and H2 hypotheses, suggesting the impact of Brand Experience Quality and Digital Marketing Capability on Organizational Agility were substantiated--with the finding that customer-focused digital and experiential capabilities play an important role in improving the sensing and speedy response ability of a firm (Kumar et al., 2021; Konopik et al., 2022). These results support claims that customer knowledge integration expedites strategic adjustment to unstable settings.

On the same note, the H3 and H4 hypotheses, namely that Process Efficiency is the result of Employee Digital Competence and Financial Resource Access, were confirmed. These findings validate the belief that digital talent and financial slack are sensitive to workflow reliability, automation, and resource optimization in accordance with recent findings that human capital micro foundations and resource availability are crucial to operational excellence in digital transformation (Roblek et al., 2022; Weritz et al., 2024).

The fourth to the seventh hypothesis H5, H6, H7 and H8 included the impact of Organizational Agility and Process Efficiency on Firm Performance and Competitive Advantage. Each of them was supported which proves that strategic responsiveness and operational discipline contribute greatly to firm performance. Such findings contribute to the dynamic capabilities theory that stresses the ability to reconfigure and optimize the process of searching the best way to achieve high performance (Tallon et al., 2019; Dubey et al., 2021).

Moderation H9 and H10 hypotheses of Environmental Turbulence enhancing the effects of Organizational Agility on performance outcomes were also found to be supported. This is consistent with the views of contingency that agility is more likely to bring higher returns in case of high uncertainty, since companies need to

constantly adapt to rapidly changing environments (Cao et al., 2021; Mikalef et al., 2022). Similarly, H11 and H12 that tested the moderation of Top Management Support on Process Efficiency-Performance relationship were confirmed. The results emphasize that the commitment of leadership improves the process of converting efficient processes into strategic and financial results (Raimo et al., 2023).

The last eight testable hypotheses, H13, H14, H15, H16, H17, H18, H19 and H20 investigated the indirect effects via the two mediators. All of the indirect paths through the Organizational Agility and Process Efficiency were important and the dual mediation was confirmed. These findings clearly show that cross-functional capabilities are not directly related to performance, rather they are dependent on the transformation mechanisms with agility and efficiency as the fundamental core ones. This backs up recent findings that capability-performance associations are sequential and need both adaptive and operational systems to generate quantifiable value (Margherita, 2022; Ly, 2023).

Taken together, the fact that all twenty hypotheses were validated as such indicates that the capability development, when coupled and moderated by contextual factors and mediated by the strategic and operational processes, provides a full-fledged team in explaining how firms can develop performance and competitive advantage, especially in the emerging markets where the constraints of the capabilities are quite significant.

Theoretical Implications.

The article contributes to the theory by illustrating that the cross-functional capabilities affect the performance by organizational agility and process efficiency in enabling dynamic capabilities and perspective based on knowledge. As shown by the contextual moderators' confirmation, the association between the capabilities and performance is an issue of the environment and leadership. The study has contributed to the theorization of multi-dimensional capabilities in emerging markets and contributes to the current knowledge on the concept of dual-path mediation to strategic management researches by combining marketing, HR and financial capabilities into a single ability system.

Implications (practical, managerial)

Development of digital marketing, experiential branding, digital competencies and financial preparedness ought to be of higher priority among the complementary sets of competencies to which the managers should concentrate. The agility enhancement is also useful to react to the market more quickly, and the efficiency enhancement provides enhanced reliability to the workflow and cost control. The leaders should be on the frontline to popularize the digital transformation programs because the commitment of the top management enhances performance that is based on efficiency. The fit to the ability of cross-functioning is strategic to the firms in the emerging economies which are striving to attain

sustainable competitive advantage particularly in the dynamic market environment where timely and coordinated responses are necessary.

Future Research and Conclusion

The research arrives at the conclusion that the cross-functional capabilities also contribute greatly to the performance of the firms and its competitive strength due to the strategic and operational processes. These associations are enabled by environmental turbulence and support of top management, which is an extrapolation of the contextual relevance. This would allow future studies to understand the industry peculiar variations, investigate the longitudinal impact of divergence during various years besides integrating other knowledge-related elements like learning orientation or knowledge integration. The relevance of the proposed framework in the other emerging markets can also be tested by comparative studies across the markets.

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