

Digital Transformation as a Catalyst for SME Performance:
Organizational Agility as a Strategic Mediator

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Article Details	Abstract
Received: 27 Feb 2024 Accepted: 26 March 2024 Published: 27 June 2024 ¹Dr. Fawad Khan ²Faisal Khattak Copyright @Author Corresponding Author: *Dr. Fawad Khan	This research examines the effectiveness of various employee engagement tools in enhancing workplace productivity. Employee engagement is crucial for fostering a motivated workforce and improving organizational outcomes. The study analyzes a range of engagement tools, including surveys, feedback platforms, recognition programs, and performance management systems. By evaluating their impact on employee morale, job satisfaction, and retention rates, the research identifies best practices for implementing these tools effectively. Quantitative metrics and qualitative insights from employee feedback are utilized to assess how these tools influence productivity levels across different sectors. Additionally, the study explores the relationship between employee engagement and organizational performance, highlighting the role of leadership in promoting a culture of engagement. The findings suggest that organizations that invest in comprehensive engagement strategies experience higher productivity, lower turnover, and improved employee well-being. This research provides valuable recommendations for HR professionals and organizational leaders seeking to implement or enhance employee engagement initiatives to drive productivity and achieve strategic goals.
Keywords: Digital Transformation, Small and Medium-Sized Enterprises (SMEs), Organizational Agility, Firm Performance, Dynamic Capabilities, Resource-Based View, Strategic Management.	

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INTRODUCTON:

SMEs are significant for their role in employment, entrepreneurship, services and in the economy. They tend to have small budgets, small staffs and less structured procedures than large companies. Cloud-based software, online channels for selling to customers, CRM software, digital payment, and data analytics are digital technologies that can enable SMEs to connect with customers, organize work, and make better decisions. However, the results are far from predictable with some companies investing in technology and gaining an edge, while others spend money and don't see any real benefit to their operations.

Digital transformation is broader than adopting a new application. It is about process, capability, business model, customer engagement and organizational culture change driven by digital technologies. The implications for performance could be related to organizational agility, defined as the capability to sense market or operational shifts, adapt quickly, and relocate resources. If decisions are made at the top, staff aren't skilled enough, or information is disorganized, it's possible for a business to have the digital tools but not move quickly.

1.1 Problem statement

While digital change is a pressure for many SMEs, they do not have clear evidence of how digital change relates to improved business performance. Investments in technology can't work if there is no strategy, the staff aren't trained or the business can't adapt its routines. The research problem is the study of the relationship between digital transformation and SME performance, and the evaluation of the role of organisational agility in the relationship.

1.2 Research objectives

To examine the relationship between digital transformation and SME performance.

To describe how digital transformation can assist with organisational agility.

To examine mediating effect of organizational agility between digital transformation and SME performance.

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To suggest feasible measures for SMEs to make digital investment more in line with their organisational capacities.

1.3 Research questions

How is digital transformation associated with SME performance?

Does digital transformation help the organization be agile?

Is there a statistically significant mediation effect between digital transformation and SME performance?

2. Theoretical foundations

2.1 Resource-based view

The resource-based view suggests that variations in organisational performance can be explained by the existence of valuable and inimitable resources and capabilities. Many firms can afford to buy digital tools and so ownership of technology is not a sustainable edge. Instead, it may be the mix of technology and employee knowledge, customer relationships, data quality, leadership, and different processes that give advantage. This viewpoint challenges the use of technology investment as a stand-alone determinant of performance, putting complementary capabilities under the microscope.

2.2 Dynamic capabilities

Dynamic capabilities are about how an organization can detect changes and opportunities, make decisions and investments to capitalize on them, and adapt or rework resources as circumstances change. Digital technologies can enhance access to customer feedback, operational data and market signals. But companies need to "read" these signals and respond. Organizational agility is therefore a possible link between digital transformation and performance: if it takes too long to respond to information, structures and routines slow it down.

2.3 Organizational agility

Agility within an organization can be defined as the ability to act rapidly and appropriately to meet the needs of changing customers, competitors, technology

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and operating conditions. It involves detecting changes, making decisions on time and also redistributing persons, processes or resources. Agility is not about rapid or unchecked change nor is it about speed for speed's sake. Agility is a balance of responsiveness, reliability, compliance and strategic focus.

Table 1. Theoretical lenses

City of God God's plan for humanity and our world Throughout this study
Beware of this aspect of God's plan.

Digital Skills: Skills, Routines and Strategic Fit: Skills are important for the performance of digital tools, skills need routines, skills and routines need to be strategically integrated

Dynamic capabilities – organisations sense, seize and transform in response to change – Explain how digital information could enable adaptation – Capabilities are hard to measure with one survey item

Position agility as a middleman between digital transformation and performance:
Speed without sound judgement may harm outcomes: Organizational agility:
Timely and effective response to changing conditions:

These perspectives together indicate that when digital transformation is taken up as a learning and adaptable capability of the firm, performance improvement can be seen. They are not to suggest that all digital investments will lead to a positive return.

3. Literature review

3.1 Digital transformation in SMEs

Digital transformation may include customer facing technologies, process automation, digital collaboration, data integration, and/or business model changes. Factors such as leadership support, employee skills, cost, infrastructure, cybersecurity issues and outside expertise may influence adoption for SMEs. While small companies can have flexibility and short communication channels,

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they can also be dependent on vendors and have limited capacity in implementing. The depth of integration is important: promoting products through social media is one thing, redesigning customer data, inventory, payment processing, and the decision making around service are another.

The organization's agility as a mechanism.

Digital solutions can enhance visibility of demand, inventory, customer activity, process slowdowns, etc. Enhanced visibility can help in earlier identification of issues and better decision-making. But if the information is not accurate, not available, or not used, it is not very useful. Managers' readiness to act, employees' right to solve issues, and the organization's ability to redistribute resources may be the factors that determine agility. This means that agility is a potential by-product of digitalization and not a given.

3.3 SME performance

Firm performance is multi-faceted. Financial outcomes: revenue growth, profitability and cost efficiency; Operational outcomes: delivery reliability, process time and productivity; and Market outcomes: customer retention, customer satisfaction and market reach. SMEs might not be willing to share financial information, while industry, firm age and market conditions can bias performance comparisons. Researchers need to choose indicators appropriate to the research questions and, when possible, use perceptual responses and objective indicators. The student will recognize the barriers and unintended consequences of various legal and ethical issues.

Digital transformation can lead to software, training, integration and maintenance expenses as well as cyber security costs. Not a well-thought-out implementation can disrupt operations or add stress to employees. Incomplete or biased data can lead to misleading data-driven decisions. Too much dependence on a single vendor can hinder flexibility, and poor security measures can lead to the leakage of customer or business data. The risks indicate a possible context and implementation quality dependent relationship between digital transformation and performance.

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3.5 Research gap

An interesting question to ask when considering digital technology is not just whether it correlates with performance, but how it's manifested in operational and strategic outcomes. This paper is concerned with the concept of agility in organisations as the proposed explanatory mechanism. It also acknowledges that evaluating performance should follow the three lines of business (Operational, Customer, Financial) and that the use of technology might involve costs and risks. The proposed model can be tested on a defined population of SMEs, and not proportion of all SMEs.

Table 2. The dimensions of digital transformation and mechanisms expected.

Hyperspectral data in 3D projection	3D projection of spectral data	Possible
projection mechanism	Risk	
E-commerce and digital marketing, CRM, customer facing digital tools, channel fragmentation or privacy issues	Wider reach and speed of customer feedback	
Process integration	Cloud systems and inventory & payment integration	
Less duplication and better coordination	Implementation cost and workflow disruption	
Lack of data-informed decisions	Dashboards, sales and service analytics	
Early detection of patterns and problems	Poor data quality, overconfidence	
Disadvantage	Digital collaboration	Shared workspaces and remote coordination
Faster communication and knowledge sharing	Information overload or access gaps	
Automation	Routine administrative tasks that can be automated	Minimize manual effort and errors
Serious problems are related to exception-handling and rigid workflows		

Theoretical framework and hypotheses 4.

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The model proposed defines digital transformation as the independent variable, organizational agility as the mediating variable and the performance of SME as the dependent variable. It allows for a direct association between digital transformation and performance as well as an indirect association through agility. Other relevant controls or contextual variables include firm size, firm age, industry, market turbulence and previous digital capability. Theories and data should guide selection of these factors.

Figure 1. Potential conceptual framework for digital transformation and SME performance.

4.1 Hypotheses

H1: It is hypothesized that there is a positive correlation between digital transformation and the performance of SMEs.

H2: The positive association between digital transformation and organizational agility.

After controlling for digital transformation, organizational agility is significantly correlated with SME performance.

H4: There is a positive statistically mediated relationship between digital transformation and the performance of SMEs through organizational agility.

Table 3. Builds and uses conceptualizations

Construct	Role	Operational definition	Possible indicators
Digital transformation		is measured by the extent to which digital tools are embedded in key processes and decisions, and the maturity of digital workflows, all of which can be predicted.	
Organizational agility	Mediator	Ability to sense change, decide promptly and reconfigure resources	Response speed, decision timeliness, flexibility, resource redeployment
SME performance	Outcome	Perceived or measured financial, operational and customer outcomes	Sales trend, efficiency, customer retention, delivery reliability

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Customers, competition, and technology changing rate of change (turbulence)

Context/control

Operating conditions Controls Structural characteristics that might affect resources and outcomes Firm age, size, sector and location

If the measurement model doesn't support it, then a single overarching digital transformation score shouldn't be developed. The researcher can also examine different aspects like customer-oriented tools, process integration, and analytics.

5. Proposed research methodology

5.1 Research approach

Proposed explanatory design in quantitative method is the explanatory design that is designed in the quantitative method. Proposed explanatory design in quantitative method is an explanatory design that is designed in quantitative method. A cross-sectional survey can be used in a student research project but cannot provide an order of events. Better yet, measure agility and DT initially, rather than performance first, or add in performance metrics to supplement survey perceptions. The study should be identified as a test of associations unless there is a legitimate basis for causal inferences.

5.2 Population and sampling

The target group comprises the owners, managers or senior employees in SMEs in a specified sector and geographic region. The researcher would have to specify the selected city/country, SME definition, sectors and sampling frame if it is in Pakistan. This could be improved by stratified sampling by sector and firm size. Where access is limited, convenience sampling might be feasible, but results cannot be generalized to all SMEs without qualification.

5.3 Sample size

The sample size should be explained using an a priori power analysis based on effect size estimates, the number of predictors, significance level, desired power, and planned statistical method. Mediation analysis can be tricky, and sufficient power is important to detect any indirect effects. The researcher should also

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examine if multiple respondents per firm are necessary and if clustering of respondents per firm creates effects on standard errors if such is the case.

5.4 Questionnaire & data sources

Where possible use measures which are established and pretest the questionnaire with SME managers or employees. Questions should make a clear differentiation between digital adoption and digital integration; and between agility and performance. Be sure to use the correct response anchors and do not ask respondents to guess confidential financial amounts unless it is absolutely necessary. If possible, add supplemental information like order processing time, customer retention or bands of revenue growth.

5.5 Ethics

All participation should be voluntary and with informed consent. Describe the aims, information gathered, confidentiality procedures and the intended uses. Never share company information without permission. Securely store data and strip away any unnecessary identifiers. Provide institutional ethical clearance if necessary.

Table 4. Proposed study design

Element	Proposed plan	Reason
Research	Cross-sectional survey; Longitudinal extension preferred	Practical for testing relationships but taking care of causal limits
Participants	SME owners, managers or informed employees	They can report the digital practices and adaptation processes.
	Improves relevance and transparency through sampling that is stratified or purposive, with clearly specified criteria.	
Construct quality and contextual fit: Measures	Validated scales plus context-specific indicators	Supports construct quality and contextual fit
The organisation's performance data	Operational, customer and financial indicators where available	Minimises one perception-based measure of performance

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Ethics Consent, confidentiality and secure storage Protects participating firms and respondents

6. Plan for data collection and analysis

6.1 Data collection

Once permission and ethics approval is granted, send a study information sheet and invite eligible respondents for survey, then gather the responses using a secure platform or paper survey. Write the number of those who were invited, completed, incomplete and excluded. Try to establish eligibility and exclusion criteria before analysis, if possible. If multiple data sources or time points, record how data was matched, keeping confidentiality.

Figure 2. Proposed research process.

6.2 Data screening and measurement

Check for missing data, duplicate responses, ineligible respondents, answers that are completed too quickly, and patterned answers. Be honest about missing data and report it. Examine internal consistency using appropriate reliability measures and construct validity by factor analysis if assumptions of measures and sample size allow. Prove that digital, agile, and performance are empirically distinct.

6.3 Hypothesis testing

Start with descriptive statistics and correlations. Apply regression or structural equation modelling based on sample size, measurement quality, and research question. Estimate the indirect effect of organizational agility (bootstrapped CIs). Think about theoretical controls like firm size, firm age, sector and market turbulence. Report coefficients, effect size, confidence intervals, assumptions, and limitations (never equate statistical significance with practical importance);

Table 5. Proposed analysis plan

Hypothesis/question: What is the question you want to answer?Analysis: What are the parts of your question?

Describe the characteristics of samples, missingness and sample distributions
Describe the properties of samples, missingness and sample distributions

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Construct profile frequencies, means, SDs and correlations Construct
table of profile frequencies, means, SDs and correlations
Quality of measurement Reliability and factor analysis Estimates of
reliability, factor loadings and validity evidence
The model is shown above for the “Digital transformation → performance”
relationship, with regression coefficient, confidence interval and effect size
displayed. The above model illustrates the relationship between Digital
transformation and performance, regression coefficient and confidence interval,
and effect size.
H3: Digital transformation → agility, Regression/path model, Coefficient and
uncertainty interval
H3: Agility → performance Performance model with digital transformation
Coefficient of agility and assumptions of the model
B4: Mediation Bootstrapped indirect effect Indirect effect, confidence interval
and caveats

7. Managerial implications

The framework can help SME managers link investments in technology with capacities and tangible results. Managers should determine the business problem, get them to a starting point, evaluate their workforce readiness, and define success measures before buying a platform. Doing digital transformation should be considered a process of learning and adaptation instead of buying a piece of technology.

7.1 Start with a business problem

Select technology for a specific purpose: i.e. to reduce order errors, to help customers respond quicker or to match stock. Before automating, map the existing process; an incorrect process, when automated, can simply make an incorrect process faster. Establish a few measurable objectives, and check for results following implementation.

7.2 Build staff and leadership skills

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Offer role specific training and allow time for staff to become familiar with new workflows. Look for internal champions to assist other colleagues and establish a system for reporting issues within the system. It is important for managers to be able to critically analyze dashboards and recognize the constraints of the data quality.

7.3 Develop agility through decision rights

Agility relies on a digital information that, if it is digital at all, is able to be acted upon by the organization. Make sure to define who should take the responsibility for answering customer complaints, restocking products, changing schedules, or approving small process changes. Have protocols and procedures for making decisions which need to be signed off by more senior colleagues and also for the exceptions which are day to day in nature and handled by frontline colleagues.

7.4 Take risks and assess return.

Discuss cybersecurity, reliance on external vendors, access, data storage and continuity. Evaluate and contrast the implementation and maintenance costs to the impact on service quality, productivity, customer retention and related financial returns. Phase-in, pilot projects if they are uncertain.

Table 6. To action research from insights to management

Avoiding the use of words, phrases, and expressions at the same time. Use words, phrases, and expressions one at a time.

Time of technology investment Define a process problem and baseline prior to investing in technology Cycle time, Error rate, or Customer response time

Employees have difficulty accepting tools Training/ support/ feedback channels
Usefulness ratings, task success, help requests

Information does not translate to action, clarify decision rights and escalation routes, time between signal and decision/action

Digital processes are broken, gradually integrate key data and workflows, duplicate data entry, data completeness and rework.

Lack of clarity around cost and benefits Staged pilots and post implementation review
Total cost, service quality and operational change.

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The limitations and future research are briefly discussed and a conclusion is drawn.

8.1 Limitations

The model proposed simplifies the various influencing factors on SME performance. Digital transformation and agility can be influenced by leadership, skills of employees, money, intensity of competition, and institutional conditions. Self-reported data might be biased and cross-sectional data would not provide causal order. However, SMEs are also very diverse between one another in terms of sector and size, making generalisations difficult. Lastly, digital transformation is multi-dimensional, meaning that a score can mask some valuable distinctions between tools and processes.

8.2 Future research

Longitudinal study designs, case studies, objective information about the operation and comparisons between sectors could be used in future studies. The potential moderating effects of employee digital skills and/or leadership support and/or market turbulence would be assessed. Research in Pakistan could be on a particular SME segment and geographic location, explore the challenges in access like cost or connectivity, and analyse the practices and results of the use of digital tools over time. Findings should be reported relative to the sampling frame, and should not be broadly generalized, without evidence.

8.3 Conclusion

Development of digital transformation can help SME performance when technology is being used along with processes and employee abilities and timely decisions. Organizational agility provides a potential pathway between digital information and tools and responsive action. But technology is not enough; quality of implementation, strategic fit, skills, security and ability to reconfigure resources are important. The suggested framework, hypotheses, tables and methodology provide basis for empirical study in the field of management sciences. The next step will be to determine the target SME population, choose validated measures, secure ethical approval, gather data and report results clearly.

Research integrity note

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This is a conceptual research paper and proposed empirical study. Does not include original data or any fake statistical outcomes. Check references and ensure that the paper is formatted according to the institution's requirements for citations.

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