



## Adoption of digital platforms and its influence on firm-level productivity and competitive advantage in SMEs

Sasikala C<sup>1</sup>, Dr. R Jamuna<sup>2</sup>

<sup>1</sup> Research Scholar, Department of Commerce, Vels Institute of Science, Technology & Advanced Studies, Chennai, Tamil Nadu, India

<sup>2</sup> Assistant Professor, Department of Commerce, Vels Institute of Science, Technology & Advanced Studies, Chennai, Tamil Nadu, India

**Corresponding Author:** Dr. R Jamuna

### Abstract

Digital platforms have fundamentally reshaped the competitive environment for small and medium-sized enterprises (SMEs), offering unprecedented access to markets, operational tools and intelligence capabilities previously confined to large corporations. This paper examines how the adoption of digital platforms — encompassing cloud computing, e-commerce marketplaces, AI-driven analytics, and enterprise resource planning (ERP) systems influences firm-level productivity and competitive advantage among SMEs in Tamil Nadu. This study surveyed 350 SME owners, managers, and IT decision-makers across 70 SMEs in Tamil Nadu using structured questionnaires. Simple percentage analysis, Chi-Square test and ANOVA were employed to examine relationships between digital platform adoption patterns and firm-level productivity, cost efficiency, and competitive positioning outcomes. The study found that SMEs that adopted multiple integrated digital platforms reported significantly higher operational efficiency and competitive advantage scores compared to non-adopters and partial adopters. Cloud computing and e-commerce platforms were identified as the most impactful adoption categories, while digital skills deficit and cost barriers emerged as the primary obstacles to sustained adoption.

**Keywords:** Digital platform adoption, SME productivity, competitive advantage, cloud computing, e-commerce, digital transformation, tamil nadu, technology adoption

### Introduction

In today's global market, digital transformation is no longer a choice for businesses of all sizes; it is instead a requirement for survival. For small and medium-sized firms (SMEs), which make up more than 90% of all businesses in India and add about 30% of the country's GDP, the use of digital platforms is both a huge chance and a huge problem. Digital platforms are technology-based environments that allow businesses, customers, suppliers and other ecosystem participants to interact in ways that create value. These platforms have made it much easier and cheaper to access markets, integrate supply chains and manage operations. Since 2020, India's small and medium-sized enterprises (SMEs) have been adopting digital platforms at a much faster rate. This is due to the disruptions caused by the pandemic and government programs like the Digital India program, the Productivity Linked Incentive (PLI) scheme and the Open Network for Digital Commerce (ONDC). Tamil Nadu has one of the most diverse SME ecosystems in India, with businesses in manufacturing, textiles, automotive parts, IT services and retail. This makes it a great place to look at how digital adoption affects business performance. Even while businesses and policymakers are becoming more interested in digitalising small and medium-sized enterprises (SMEs), there isn't much empirical study on how adopting digital platforms affects productivity and competitive advantage at the firm level in India. Most current research utilises cross-sectional data from established economies and may not sufficiently reflect the institutional, infrastructural and cultural aspects influencing digital adoption outcomes in SMEs within emerging economies. This study examines the adoption of digital platforms by Tamil Nadu-based

SMEs, analysing the productivity and competitive advantages linked to various adoption profiles, as well as the constraints hindering broader and more successful implementation.

### Significance of The Study

The significance of the research is threefold. First, it contributes to the expanding body of research on digital transformation in emerging economy SMEs by offering country-specific and sector-specific evidence that is relevant for both theory building and practice. Second, it provides valuable insights for the SME policy domain of the emerging economy of India in terms of what types of platform adoption are most correlated with productivity and competitiveness benefits for SMEs in the region. Finally, it provides a foundation for intervention design to overcome the impediments to adoption for non-digitised and partially digitised firms and thereby bridge the growing digital divide between platform-adoption-enabled and non-enabled SMEs.

### Review of Literature

Bharadwaj *et al.* (2013) [1], did a new conceptual analysis of digital business strategy that showed how the size, scope, and speed of digital platform adoption radically change the link between technology investment and competitive posture. Digital platforms are not merely information technology assets; their contributions established the theoretical foundation for perceiving them as strategic facilitators of novel paradigms of appropriation and wealth generation. This means that small and medium-sized businesses (SMEs) need to include platform adoption decisions in their explicit competitive strategy frameworks

instead of thinking of them as distinct activities for buying technology. Brynjolfsson and McAfee (2014) [2] looked into how digital technology affects the economy in a big way. They discovered that digital platforms provide significant productivity potential; nevertheless, it is paradoxical that aggregate productivity metrics do not consistently represent the actual value generated by individual enterprises. In order for their research to show substantial performance improvements, platform adoption must be followed by extra expenditures in human resources, process changes, and data infrastructure. The Technology-Organisation-Environment (TOE) framework, which was developed by Tornatzky and Fleischer (1990) [10], is still the most popular way to analyze how companies use technology. The TOE framework says that the major things that affect adoption decisions are technical characteristics, how ready an organization is, and environmental considerations. Various empirical studies within small and medium-sized firms (SMEs) have demonstrated that technological aspects alone exert less influence on adoption outcomes compared to organizational factors, such as executive support and digital culture. Eller *et al.* (2020) [4] did a detailed assessment of the causes and impacts of SME digitalization and found that firm size, industry sector, prior digital expertise, and access to trained personnel are all important factors that affect outcomes. The authors discovered a significant correlation between digital platform use and revenue growth, market expansion, and operational efficiency. The survey suggested that the government should subsidize digital literacy initiatives for small and medium-sized businesses (SMEs). It revealed that a lack of digital skills was the most common barrier to effective adoption. Mokhothu & Thango (2025) [6] employed the PRISMA 2020 approach in an extensive analysis of 90 studies about cloud computing adoption in SMEs. The findings indicated that 82% of the adopters experienced an enhancement in operational efficiency, while 76% observed a reduction in quantifiable expenses. The study indicated that top-level management support was the most common organizational facilitator, showing up in 68% of the studies looked at. Data security concerns were the most common reason people didn't embrace.

### Statement of The Problem

Although the potential of digital platforms for enhancing SME productivity and gain is well recognised in the global literature on strategy, the processes and outcomes of digital adoption in the Tamil Nadu SME setting have received relatively little empirical research attention. The majority of what has been studied has been undertaken in the context of the developed world and may not be fully representative of the infrastructural, skill-related, capital access-related, and sector-specific factors that are pertinent in the South Indian setting. There is a lack of research-based evidence on the types of digital platforms being adopted by Tamil Nadu SMEs, the productivity and gain outcomes of adoption, differences in adoption across different sectors of the

### Sample Design: Sector-wise Distribution of Respondents

| S.No  | Sector                            | No. of SMEs | No. of Respondents | Percentage |
|-------|-----------------------------------|-------------|--------------------|------------|
| 1     | Manufacturing                     | 18          | 90                 | 25.7       |
| 2     | Information Technology & Services | 16          | 80                 | 22.9       |
| 3     | Retail & FMCG                     | 14          | 70                 | 20.0       |
| 4     | Textile & Garments                | 12          | 60                 | 17.1       |
| 5     | Food Processing                   | 10          | 50                 | 14.3       |
| Total |                                   | 70          | 350                | 100.0      |

Source: Primary Data

economy, and the factors that are most inhibiting digital adoption and value realisation.

### Objectives of The Study

1. To examine the pattern of digital platform adoption among SMEs in Tamil Nadu across different sectors and firm size categories.
2. To analyse the relationship between digital platform adoption intensity and firm-level productivity and competitive advantage outcomes.
3. To identify the principal barriers that impede effective digital platform adoption and value realisation among Tamil Nadu SMEs.

### Hypotheses of The Study

**H<sub>01</sub>:** There is no significant association between digital platform adoption intensity and firm-level productivity outcomes among SMEs.

**H<sub>02</sub>:** There is no significant difference in competitive advantage scores across SMEs with different digital platform adoption profiles.

**H<sub>03</sub>:** There is no significant association between the type of barrier faced and the level of digital platform adoption among SMEs.

### Research Methodology

The design of the research is descriptive and analytical in nature. In the present study, the primary research is conducted by sending structured questionnaires to 350 owners, senior managers, and IT decision-makers of 70 identified SMEs in the state of Tamil Nadu. The industries of the firms covered in the present research include manufacturing, information technology services, retail and FMCG, textile and garments, and food processing. The questionnaire of the present research focused on the adoption of digital platforms, types of platforms adopted by the firms, changes in the productivity of firms, competitive advantages of firms and hindrances to the adoption of digital platforms. The analysis of the present research is conducted by using simple percentage analysis, the Chi-Square test of association and one-way ANOVA.

### Sample Design

A stratified random sampling technique was used for data collection. SMEs were stratified by sectors and respondents were identified who had direct responsibility for technology investment or operational management within their firms. The study used the definition provided by the Ministry of MSME, manufacturing SMEs with plant and machinery investment between ₹1 crore and ₹50 crore and service SMEs with a turnover between ₹5 crore and ₹250 crore. A total of 350 valid survey data were collected from the following sectors:

**Table 1:** Types of Digital Platforms Adopted by SMEs

| S.No  | Type of Digital Platform                   | No. of SMEs Adopted | No. of Respondents | %    |
|-------|--|---------------------|--------------------|------|
| 1     | Cloud Computing (SaaS/IaaS/PaaS)           | 28                  | 140                | 40.0 |
| 2     | E-Commerce & Online Marketplace Platforms  | 22                  | 110                | 31.4 |
| 3     | AI-Driven Analytics & CRM Platforms        | 10                  | 50                 | 14.3 |
| 4     | Enterprise Resource Planning (ERP) Systems | 6                   | 30                 | 8.6  |
| 5     | IoT & Supply Chain Integration Platforms   | 4                   | 20                 | 5.7  |
| Total |  | 70                  | 350                | 100  |

Source: Primary Data

From Table 1, it is also evident that 40.0 percent of the total SMEs in the sample have already started to adopt the Cloud Computing platforms such as SaaS, IaaS, and PaaS as the digital infrastructure. This is the highest percentage of adoption. Next in the list of adoption is the E-Commerce and Online Marketplace Platforms, which have managed to

attain 31.4 percent of the total adopters. Then there is the adoption of AI-Driven Analytics and CRM Platforms, which is 14.3 percent. Next in the line of adoption is the ERP Systems and the IoT-enabled Supply Chain Platforms, which have managed to attain 8.6 percent and 5.7 percent of the total adopters, respectively.

**Table 2:** Perceived Productivity Impact of Digital Platform Adoption

| S.No | Productivity Impact Indicator               | No. of Respondents Agreed | No. of Respondents Disagreed | % Agreed |
|------|---|---------------------------|------------------------------|----------|
| 1    | Reduction in operational costs              | 273                       | 77                           | 78.0     |
| 2    | Improvement in process efficiency and speed | 259                       | 91                           | 74.0     |
| 3    | Enhanced access to new customer markets     | 245                       | 105                          | 70.0     |
| 4    | Better real-time data for decision making   | 217                       | 133                          | 62.0     |
| 5    | Reduction in manual errors and rework       | 196                       | 154                          | 56.0     |

Source: Primary Data

From the table, it is clear that out of the five identified indicators of digital platform adoption on productivity performance, the reduction of operational costs was the one that received the highest level of agreement from the respondents, with 78.0 percent of the total respondents affirming this as a realised productivity gain from digital platform adoption. Improvement of process efficiency and speed was also affirmed by 74.0 percent of the total respondents, while the improvement of access to new

customer markets was affirmed by 70.0 percent of the total respondents. Better data for decision-making and reduction of manual errors were affirmed by 62.0 per cent and 56.0 percent of the total respondents, respectively. It is also clear from the table below that while data-driven productivity gains are realised, not all are able to experience this gain and perhaps require higher digital maturity to experience this gain.

**Table 3:** Barriers to Digital Platform Adoption and Their Perceived Severity

| S.No | Barrier to Adoption                              | VS  | S   | M  | NS | NB | Total |
|------|--|-----|-----|----|----|----|-------|
| 1    | High initial investment and subscription costs   | 148 | 92  | 54 | 38 | 18 | 350   |
| 2    | Lack of digital skills among employees           | 132 | 98  | 62 | 40 | 18 | 350   |
| 3    | Concerns about data security and privacy         | 118 | 105 | 70 | 38 | 19 | 350   |
| 4    | Poor internet and IT infrastructure connectivity | 96  | 102 | 82 | 48 | 22 | 350   |
| 5    | Resistance to change from management or staff    | 88  | 95  | 92 | 52 | 23 | 350   |

Source: Primary Data (VS = Very Severe; S = Severe; M = Moderate; NS = Not Severe; NB = Not a Barrier)

Table 3 indicates that out of the five barriers to digital platform adoption identified, high initial investment and subscription cost were rated as the most severe, with 42.3 percent of respondents rating it 'Very Severe' and a further 26.3 per cent rating it 'Severe,' making up a total of 68.6 percent severity rating. The lack of digital skills among employees was rated as the second most severe, with 37.7 percent of respondents rating it 'Very Severe' and a further

28.0 percent rating it 'Severe,' making up a total of 65.7 percent severity rating. Data security concerns were rated as the third most severe, making up a total of 63.7 percent severity rating, followed by poor infrastructure connectivity, rated as severe or very severe by 56.6 percent and resistance to change, rated as severe or very severe by 52.3 percent of respondents.

**Table 4:** Chi-Square Test: Association Between Digital Platform Adoption Intensity and Firm-Level Productivity Outcomes

| Productivity Outcome              | Non-Adopter (n=42) | Partial Adopter (n=126) | Moderate Adopter (n=119) | Full Adopter (n=63) | $\chi^2$ (Sig.)            |
|-----------------------------------|--------------------|-------------------------|--------------------------|---------------------|----------------------------|
| Cost reduction reported (Yes)     | 19.0               | 54.0                    | 81.5                     | 96.8                | $\chi^2=98.24$<br>p<0.001* |
| Process efficiency improved (Yes) | 14.3               | 49.2                    | 78.2                     | 93.7                | $\chi^2=91.37$<br>p<0.001* |
| Market access expanded (Yes)      | 11.9               | 44.4                    | 72.3                     | 90.5                | $\chi^2=87.63$<br>p<0.001* |

Based on Primary Data \* Sig.@1%

The Chi-Square values of 98.24, 91.37, and 87.63 for cost reduction, process efficiency, and market access outcomes, respectively, are highly significant at the one percent level of significance ( $p < 0.001$ ). These values clearly show that there is a highly significant relationship between digital platform adoption intensity and productivity outcomes at the firm level. Hence, the given null hypothesis  $H_{01}$  is rejected. The percentages presented in the form of a cross-tabulation

clearly show a rising pattern of positive productivity outcomes as the intensity of adoption increases from non-adopters to partial adopters, moderate adopters, and finally to full adopters of digital platforms. It is also interesting to note that while as many as 96.8 percent of full adopters experienced positive outcomes for cost reduction, only 19.0 percent of non-adopters experienced similar outcomes, over 77 percent is the difference between the two groups.

**Table 5:** ANOVA Test: Competitive Advantage Scores Across Digital Platform Adoption Profiles

| Competitive Advantage Variable               | Adoption Profile | N   | Mean | S.D. | F Value | Sig.   |
|--|------------------|-----|------|------|---------|--------|
| Market positioning strength                  | Non-Adopter      | 42  | 2.18 | 0.74 | 11.432  | 0.000* |
|  | Partial Adopter  | 126 | 3.12 | 0.61 |         |        |
|  | Moderate Adopter | 119 | 3.89 | 0.52 |         |        |
|  | Full Adopter     | 63  | 4.71 | 0.34 |         |        |
|  | Total            | 350 | 3.64 | 0.89 |         |        |
| Customer retention and loyalty               | Non-Adopter      | 42  | 2.31 | 0.81 | 9.874   | 0.000* |
|  | Partial Adopter  | 126 | 3.24 | 0.68 |         |        |
|  | Moderate Adopter | 119 | 3.97 | 0.57 |         |        |
|  | Full Adopter     | 63  | 4.58 | 0.41 |         |        |
|  | Total            | 350 | 3.72 | 0.94 |         |        |
| Innovation & product/service differentiation | Non-Adopter      | 42  | 2.04 | 0.69 | 13.219  | 0.000* |
|  | Partial Adopter  | 126 | 2.98 | 0.72 |         |        |
|  | Moderate Adopter | 119 | 3.83 | 0.59 |         |        |
|  | Full Adopter     | 63  | 4.79 | 0.26 |         |        |
|  | Total            | 350 | 3.59 | 1.02 |         |        |

Based on Primary Data \* Sig.@5%

The calculated values of 11.432, 9.874, and 13.219 for market positioning strength, customer retention and loyalty, and innovation and product/service differentiation respectively, are all statistically significant at the five percent level of significance as indicated by  $p < 0.001$  values. The values thus confirm the presence of a significant difference in competitive advantage score across SMEs categorised into different digital platform adoption types. The null hypothesis  $H_{02}$  is thus rejected. It is notable that the pattern of increasing mean competitive advantage score is replicated across all competitive advantage dimensions,

rising from non-adopter base levels of 2.18, 2.31, and 2.04 to full adopter levels of 4.71, 4.58 and 4.79, respectively. The low values of standard deviation for full adopters of digital platforms at 0.34, 0.41 and 0.26, respectively, relative to non-adopters and partial adopters of digital platforms, also point to the high degree of convergence of competitive advantage experiences for full adopters of digital platforms; a situation which suggests that comprehensive digital platform adoption is likely to deliver highly predictable competitive advantage outcomes.

**Table 6:** Chi-Square Test: Association Between Principal Barrier Faced and Level of Digital Platform Adoption

| Principal Barrier Cited       | Non-Adopter | Partial Adopter | Moderate Adopter | Full Adopter | $\chi^2$ (Sig.)               |
|-------------------------------|-------------|-----------------|------------------|--------------|-------------------------------|
| High investment / cost burden | 38.1        | 34.9            | 20.2             | 6.3          | $\chi^2=47.82$<br>$p<0.001$ * |
| Digital skills deficit        | 33.3        | 30.2            | 26.1             | 11.1         | $\chi^2=31.14$<br>$p<0.001$ * |
| Data security concerns        | 14.3        | 20.6            | 28.6             | 25.4         | $\chi^2=12.76$<br>$p=0.005$ * |
| Infrastructure constraints    | 9.5         | 9.5             | 15.1             | 22.2         | $\chi^2=8.93$<br>$p=0.030$ *  |
| Resistance to change          | 4.8         | 4.8             | 10.1             | 34.9         | $\chi^2=36.51$<br>$p<0.001$ * |

Based on Primary Data \* Sig.@5%

The Chi-Square values of all five categories of barriers are statistically significant at a 5 percent level of significance. Hence, there is a significant association between the principal barrier faced and the level of digital platform adoption. Therefore, the null hypothesis  $H_{03}$  is rejected. There is a clear inverse relationship between financial and skills barriers being faced by a large number of non-adopters and partial adopters, while resistance to change emerges as the dominant barrier faced by full adopters (34.9 percent), indicating that a qualitatively different set of barriers might be faced by those who have progressed the furthest on the digital adoption spectrum from those who are

yet to take the first step or are at an early stage of digital adoption.

### Findings of The Study

1. Cloud computing was the most popular digital platform for small and medium-sized businesses in Tamil Nadu, with 40.0% of them using it. E-commerce and marketplace platforms were next, with 31.4% of businesses using them. Only a few skilled users still employ complex ERP systems and IoT-enabled supply chain solutions.

2. According to 78% of respondents, adopting a digital platform cut operational expenses the most. This was followed by improvements in process efficiency (74%) and access to new markets (70%).
3. The most common reason people didn't accept digital platforms was that they were too expensive to invest in or subscribe to (68.6% of respondents said it was 'Severe' or 'Very Severe'). The second most common reason was a lack of digital skills (65.7% of respondents said it was 'Severe' or 'Very Severe').
4. A Chi-Square study showed a strong link between how much a company uses digital platforms and how productive it is ( $\chi^2 = 98.24, 91.37, 87.63$ ;  $p < 0.001$ ). Full adopters save money, work more efficiently, and reach more customers, 65-78% more than those who don't embrace. The null hypothesis  $H_{01}$  is not true.
5. ANOVA analysis shows that there are big differences in competitive advantage ratings based on market positioning ( $F = 11.432$ ), customer retention ( $F = 9.874$ ), and innovation capability ( $F = 13.219$ ), all of which are significant at  $p < 0.001$ . Full adopters usually get the highest scores with the least amount of variation. The null hypothesis  $H_{02}$  is not true.
6. The Chi-Square analysis shows a strong link between the kind of barrier and the use of digital platforms (all  $\chi^2$  values are significant at  $p < 0.05$ ). Early adopters have financial and skill-related obstacles, while complete adopters confront resistance to organisational change. The null hypothesis  $H_{03}$  is not accepted.

### Suggestions

1. To help micro and small businesses in the manufacturing, textile, and food processing sectors, where capital constraints are most severe, government agencies and MSME development corporations should set up digital platform subsidy schemes and technology voucher programs.
2. Industry groups and technical training schools should make digital literacy programs just for small and medium-sized businesses that are based on the most popular platform categories, such as cloud computing and e-commerce. This would help fill the skills gap that is the second biggest barrier to adoption for all groups.
3. Owners and managers of small and medium-sized businesses (SMEs) should make cloud computing their top digital investment since it has the highest adoption rate and there is clear evidence that it can save money and make processes more efficient. Cloud infrastructure also makes it easier to gradually integrate more modern platforms like ERP systems and AI-driven analytics.
4. Companies that are only partially or moderately adopting should invest in structured digital transformation roadmaps that link platform adoption to clear productivity goals and measurement frameworks. This will speed up progress toward full adoption profiles, where competitive advantages are both bigger and more stable.
5. To get past resistance to change, which is the biggest problem for full adopters, SME leaders should spend money on digital change management tools like internal digital champions, structured change communication programs, and letting employees help choose and onboard new platforms.

### Conclusion

Adopting digital platforms is one of the most important strategic choices that Tamil Nadu's small and medium-sized businesses will have to make this decade. This study has shown, through thorough primary survey evidence from 350 respondents and 70 SMEs, that adopting digital platforms is strongly and significantly linked to higher productivity at the firm level and a stronger competitive edge. Full adopters did better on every measured outcome by large margins than non-adopters. In Tamil Nadu, cloud computing and e-commerce platforms are the most disruptive adoption categories. For most adopters, they offer benefits including lower costs, faster processes and better access to markets. However, adoption is not a simple yes-or-no choice; it is a process that gets better over time. The hurdles that make it harder to move forward are different at each stage of adoption. Financial hurdles and a lack of expertise make it hard for companies to adopt new technologies early on. On the other hand, organisational culture and reluctance to change make it hard for companies already on the digital path to move forward. Consequently, effective policy and management responses must be tailored to the specific adoption stage, rather than employing universal interventions. The results of this study underscore the necessity for both legislative intervention and managerial leadership to promote SME digitalisation in Tamil Nadu. As competition around the world gets tougher and digital platforms have more and more power over which businesses can get to markets, talent and capital, the digital divide between SMEs that can use platforms and those that can't will get bigger, not smaller, unless something is done on purpose. Companies and policymakers that invest now in lowering barriers to adoption, building digital skills and including digital platforms in clear competitive strategies will be best able to take advantage of the big gains in productivity and competitiveness that the evidence shows are possible.

### References

1. Bharadwaj A, El Sawy OA, Pavlou PA, Venkatraman N. Digital business strategy: Toward a next generation of insights. *MIS Quarterly*, 2013;37(2):471-482.
2. Brynjolfsson E, McAfee A. *The Second Machine Age: Work, Progress and Prosperity in a Time of Brilliant Technologies*. W. W. Norton & Company: New York, 2014.
3. Brynjolfsson E, Li D, Raymond L. Generative AI at work. National Bureau of Economic Research Working Paper, 2024, 31161. doi:10.3386/w31161
4. Eller R, Alford P, Kallmünzer A, Peters M. Antecedents, consequences and challenges of small and medium-sized enterprise digitalization. *Journal of Business Research*, 2020;112:119-127.
5. Garzoni A, De Turi I, Secundo G, Del Vecchio P. Digital transformation in SMEs: Enablers, interconnections, and a framework for sustainable competitive advantage. *MDPI Administrative Sciences*, 2025;15(3):107.
6. Mokhothu KD, Thango BA. Evaluating the impact of cloud computing on SME performance: A systematic review. *Businesses*, 2025;5(2):23. MDPI.
7. OECD. SME digitalisation to manage shocks and transitions. OECD SME and Entrepreneurship Papers, 2024, 147. Paris: OECD Publishing.

8. OECD. Emerging divides in the transition to artificial intelligence. OECD Regional Development Papers, 2025. Paris: OECD Publishing.
9. Rogers EM. Diffusion of Innovations (5th ed.). Free Press: New York, 2003.
10. Tornatzky LG, Fleischer M. The Processes of Technological Innovation. Lexington Books: Lexington, MA, 1990.
11. Teece DJ. Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. Strategic Management Journal, 2007;28(13):1319-1350.
12. Barney J. Firm resources and sustained competitive advantage. Journal of Management, 1991;17(1):99-120.
13. Cohen WM, Levinthal DA. Absorptive capacity: A new perspective on learning and innovation. Administrative Science Quarterly, 1990;35(1):128-152.
14. Preprints.org. Digital technologies and channels for competitive advantage in SMEs: A systematic review, 2024.
15. Tandfonline. Role of digital transformation for sustainable competitive advantage of SMEs. Cogent Business & Management, 2024, 11(1).