

Analysis of the Impact of Digital Orientation on the Profitability of Small and Medium-Sized Enterprises

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Abstract: Digital transformation has become an essential factor shaping contemporary business processes, particularly within the small and medium-sized enterprises (SMEs) sector, which often faces resource constraints and rapid market fluctuations. The purpose of this study is to explore the impact of digital orientation on SME profitability, considering digital orientation through five critical dimensions: strategic planning, technological investment, budget allocation, organisational agility, and employee training. Although existing frameworks acknowledge the relevance of digital transformation, they frequently lack a comprehensive approach to integrating these dimensions in the context of business performance. The research adopted a quantitative approach, employing a five-point Likert scale based on responses from 740 SME participants. Findings indicate a statistically significant positive correlation between digital orientation and perceived profitability, confirming that a strategic focus on digital resources and employee competency development significantly contributes to sustainable growth within the SME sector. Future research should prioritise support for struggling SMEs through government aid, tailored training, and stronger public-private partnerships. Overcoming these barriers will enable full use of digital technologies and enhance long-term competitiveness. In addition, focusing solely on profitability overlooks other vital indicators such as growth, profit, and market share. Further efforts should aim to bridge the digital divide and promote broader digital transformation across SMEs.

Index Terms: *Digital Transformation, Digital Orientation, Strategic Planning, Technological Investments, Agility, Training, Profitability, Small and Medium-Sized Enterprises*

1. INTRODUCTION

Digital transformation today represents a critical driver of change, reshaping core business principles, accelerating innovation, and guiding strategic transformations within organizations. The influence of emerging technologies, rapid digitalisation, and the need to adapt swiftly to dynamic market conditions have prompted enterprises of all sizes to enhance business processes through digital tools and strategies. Although traditionally associated with larger organisations, small and medium-sized enterprises (SMEs) increasingly recognise their importance for competitiveness, sustainability,

and growth [1].

In this context, the concept of digital orientation gains significance as a holistic approach encompassing strategic commitment, financial and infrastructural readiness, organisational flexibility, and ongoing employee development in effectively adopting emerging technologies [2]. Nevertheless, despite recognition in existing literature of digital transformation's contribution to enhancing business performance, empirical evidence systematically linking digital orientation with SME profitability remains limited, especially within emerging market environments.

A growing body of recent research emphasises the complexity of the relationship between digital transformation and SME performance, particularly profitability. Recent studies have shown that digitalisation fosters innovation in products and processes, especially through integration in production, logistics, and value chains [3,4,5]. Other research points to both the potential and limitations of digital transformation, citing efficiency gains, customer engagement, and market access as key benefits, but also highlighting high costs, cybersecurity issues, and skill gaps [6,7]. Digital tools have been shown to improve internal operations and stakeholder management, though they require a coherent and organisation-wide strategy to be effective [8,9,10]. Moreover, the financial impact of digitalisation in smaller firms appears to plateau beyond a certain point, despite gains in innovation and efficiency [11,12]. Taken together, these studies demonstrate that profitability in SME digital transformation should be assessed within a framework of strategic alignment and organisational capability.

The primary objective of this paper is to explore the relationship between digital orientation and SME profitability, emphasising five critical dimensions: strategic planning of digital solutions, investments in emerging technologies, availability of financial and infrastructural resources, organisational agility, and employee training programmes. The research was conducted among SME employees, with data collected through a Likert-scale questionnaire.

The application of descriptive statistics, correlation analysis, ANOVA testing, and linear

regression enabled an in-depth examination of the relationship between digital orientation and perceived profitability. The findings emphasise the importance of investments in digital capabilities as a crucial factor for enhancing profitability, while also providing practical recommendations for decision-makers within SMEs who are either planning or currently undertaking digital transformation initiatives.

2. LITERATURE REVIEW

In today's business environment, digital orientation is recognised as a strategic concept that goes beyond isolated digital solutions. It helps SMEs shape growth strategies, optimise internal processes, and build sustainable competitive advantages, especially given their limited resources. Exploring this concept theoretically and empirically highlights its potential impact on key performance indicators, especially in profitability. However, further research is needed to define how SMEs can effectively integrate digital orientation into strategic planning.

Consequently, the relationship between digital orientation and business performance, especially profitability, is attracting increasing attention from both researchers and decision-makers within the SME sector.

2.1 Understanding Digital Orientation

Strategic orientation denotes a company's consistent commitment to specific approaches in setting and achieving business goals. According to Miles and Snow's typology, organisations are classified as reactors, defenders, analysers, or prospectors, with proactive strategies linked to innovation and entrepreneurial spirit [13]. Although the effects of various strategies on firm performance have been well studied, the reasons behind specific strategic choices remain underexplored [14]. In the literature, strategic orientations are defined as stable behavioural patterns that guide responses to change, resource allocation, and key decision-making [15]. The most frequently examined are entrepreneurial [16], market [17], innovation [18], and learning orientations [19], which emphasise processes and capabilities over fixed outcomes. This is particularly relevant for SMEs, where limited resources require careful strategic positioning [1].

The evolution of strategic orientation is especially pronounced in the digital environment, where technologies act not merely as tools but as core drivers of organisational innovation and new business models. They transform entrepreneurial processes by enabling the creation and pursuit of opportunities in ways that were not possible in traditional contexts [20].

In today's dynamic business environment,

digital orientation is recognised as a broad concept encompassing strong strategic focus, resource readiness, organisational agility, and ongoing employee development in emerging technologies [2]. Unlike digitisation, the technical conversion of analogue content, digitalisation is a wider socio-technical process that embeds digital technologies into organisational processes and infrastructural systems [21]. It brings changes at individual, collective, and institutional levels, requiring a new form of organisational readiness.

As digital transformation grows more complex, digital orientation should be seen as a dynamic construct combining strategic intent, technological readiness, and adaptability. Key features of digital technologies, such as reprogrammability and data homogenisation, enable flexible innovation, distinguishing them from traditional solutions [21]. These features pose challenges and opportunities for organisations lacking the strategic capabilities to manage digital transformation effectively.

Digital orientation includes strategic planning, technological and budgetary investment, organisational agility, employee training, and IT resource readiness, thereby enhancing a company's competitiveness and profitability [2].

2.2 Digital Orientation and Firm Performance

Digital orientation is increasingly acknowledged as a key driver of firm performance, especially in small and medium-sized enterprises (SMEs). It is viewed not merely as a technological framework, but as a strategic-operational model that drives value creation and sustainable competitive advantage [22]. In this context, firm performance reflects the effectiveness of digital strategy implementation, with profitability emerging as one of the most relevant, measurable indicators [23].

Financial and infrastructural readiness is crucial for successful digital transformation, as access to essential technological and financial resources directly impacts an organisation's capacity to adopt digital solutions [24]. Limited budgets, restricted access to advanced technologies, and inadequate infrastructure often impede digital initiatives, particularly in SMEs with fewer resources. In contrast, firms with these resources are better positioned to integrate digital tools, enhance operational efficiency, and secure long-term competitive advantage. In contrast, firms with these resources are better positioned to integrate digital tools, enhance operational efficiency, and secure long-term competitive advantage.

Strategic planning forms the foundation of digital transformation, ensuring that initiatives are part of a long-term organisational vision rather than ad hoc responses to market changes. Integrating digital objectives into strategic documents helps align technology with business priorities, resources, and structure. Well-defined

strategies improve implementation, reduce risk, and support accurate investment assessment [25]. The integration of entrepreneurship, management, and marketing within strategic planning, while considering broader socio-political and technological factors, is vital for entrepreneurial resilience [26].

Investments in advanced technologies like AI, blockchain, cloud computing, and IoT allow firms to refine business models, optimise operations, and enhance customer experiences. The convergence of these technologies not only improves processes but also drives the creation of data-driven, autonomous, and innovation-oriented business models. This synergy boosts firms' strategic and operational capabilities, strengthening competitiveness in dynamic markets [27]. Similarly, Vapa Tankosić et al. highlight that digital transformation in agriculture demands new policies, technologies, and a shift in practices to tackle sustainability challenges and improve resource efficiency [28].

Organisational agility is crucial for successful digital transformation, enabling firms to quickly adapt to constantly changing market and technological conditions. Agile organisations embrace experimentation, risk-taking, continuous learning, and collaboration, which facilitate the rapid adoption of digital solutions [29]. In the digital era, agility is a strategic asset, not just an operational function. Digital agility includes modular design, reliance on scalable digital platforms, real-time analytics for decision-making, and a culture that balances stability with innovation [30]. This ability to address immediate needs while anticipating future challenges makes agility a core element of digital orientation.

Employee training and development are essential for effectively using digital tools. Simply having technology is not enough; employees must be skilled to maximize its potential. Without investment in digital capabilities, technologies are underutilised, diminishing the impact of digital transformation on performance. Research shows that organisations that develop digital skills in employees better align infrastructure with operational goals, enhancing resilience and adaptability to market changes [31]. Additionally, addressing barriers to digitalisation, along with strong management commitment, efficient implementation, and investment management, is crucial for successful transformation [32]. Moreover, Lekić et al. emphasize the critical role of investing in human resources, knowledge, and innovation to build resilience and improve competitiveness, particularly in micro and small enterprises, to fully leverage the potential of digital tools [33].

Profitability is a composite indicator reflecting the impact of all dimensions of digital orientation. While influenced by various factors, it remains a reliable measure of digital transformatic

success, especially in SMEs, where investment efficiency is assessed through financial results. However, high digital orientation or technology adoption does not guarantee financial success. The key factor is an organisation's digital maturity, which mediates between digital initiatives and actual performance [22].

Building on theoretical insights into the multidimensional nature of digital orientation and its effect on profitability, a study was carried out with a sample of small and medium-sized enterprises to identify patterns and variations in their approaches to digital transformation and business performance.

3. METHODOLOGICAL APPROACH

The research was conducted using an anonymous survey in Belgrade, from September 1, 2024, to March 1, 2025, with a sample of 740 employees from small (323 respondents) and medium-sized enterprises (417 respondents). A total of 900 questionnaires were distributed, resulting in a response rate of 82.22%. The sample included employees from various hierarchical levels to provide a comprehensive analysis of digital orientation and business performance. The enterprises were classified based on the number of employees: small (11–49 employees) and medium-sized (50–249 employees) [34].

The distribution of the sample across small [SE] and medium-sized enterprises [ME] is presented in Figure 1.

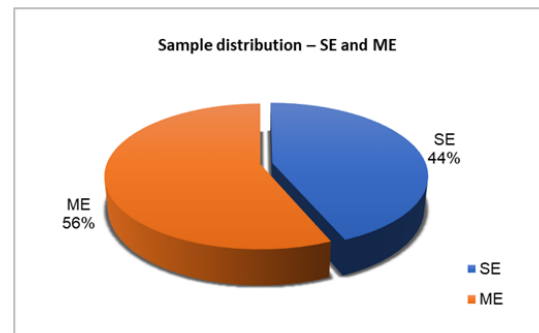


Figure 1. Structure of the research sample by enterprise size

The research instrument consisted of six variables (V1–V6), which respondents rated on a 5-point Likert scale, where 1 represented strong disagreement and 5 represented strong agreement with the given statement. The final statement (V6) referred to the subjective assessment of the firm's profitability level. The statements formulated were as follows:

V1: The company allocates resources for digital solutions, IT teams, and infrastructure.

V2: The company has strategic plans that include digital transformation.

V3: The company invests significantly in new technologies, such as Blockchain, AI, IoT, Cloud

computing, and 5G networks.

V4: The company is agile in decision-making related to digital tools and software solutions;

V5: The company provides training programs to support the adoption of new technologies.

V6: The company achieves a satisfactory level of profitability.

Statistical and econometric data processing was performed using the EViews 8 software package.

4. RESULTS AND DISCUSSION

The following descriptive statistics summarize the ratings of respondents from small and medium-sized enterprises across all examined variables, as shown in *Table 1*.

In small enterprises, average ratings ranged from 2.783 (V3 – investment in new technologies) to 3.622 (V4 – decision-making agility). The lower rating for V3 indicates limited resources and caution towards complex technological investments, while the higher rating for V4 suggests flexibility and quick decision-making in implementing digital solutions. The response distribution for both variables aligns with a normal distribution (JB $p > 0.05$) [35], confirming consistency within this group.

Table 1. Descriptive Statistics and Response Distribution Normality

V	ET	M	Md	SD	Sk	Ku	JB (p)
V1	SE	3.393	3.000	0.944	-0.011	2.525	3.049 (0.218)
	ME	4.122	4.000	0.804	-0.753	3.361	41.625 (0.000)
V2	SE	3.307	3.000	1.175	0.101	1.949	15.618 (0.000)
	ME	4.007	4.000	1.013	-0.875	3.142	53.609 (0.000)
V3	SE	2.783	3.000	0.868	-0.165	2.512	4.637 (0.097)
	ME	3.947	4.000	0.798	-0.233	2.474	11.229 (0.004)
V4	SE	3.622	4.000	0.878	-0.127	2.698	2.010 (0.350)
	ME	3.206	3.000	0.826	-0.163	2.973	3.431 (0.179)
V5	SE	3.121	3.000	0.740	-0.071	3.224	3.481 (0.175)
	ME	4.213	4.000	0.727	-0.547	2.893	9.328 (0.009)
V6	SE	3.533	4.000	0.933	-0.118	2.445	4.939 (0.085)
	ME	3.873	4.000	0.794	-0.203	2.437	8.352 (0.015)

Note: Q = Variable; ET = Enterprise Type (SE = Small, ME = Medium); M = Mean; Md = Median; SD = Standard Deviation; Sk = Skewness; Ku = Kurtosis; JB (p) = Jarque-Bera test statistic with corresponding p-value

Ratings ranged from 3.206 (V4 – decision-making agility) to 4.213 (V5 – employee training programs). The high V5 rating indicates a strong commitment among medium-sized enterprises to enhancing digital competencies through structured training. The lower V4 rating suggests slower decision-making on digital solution implementation, despite available resources. In both cases, responses deviate significantly from normal distribution (JB $p < 0.05$) [35], indicating more positive views and fewer neutral assessments.

A comparative visual representation of the digital orientation parameters in small and medium-sized enterprises is shown in Figure 2.

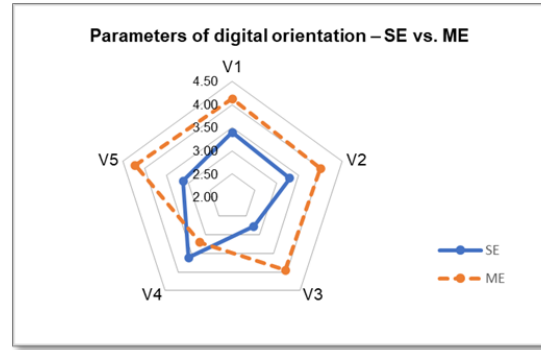


Figure 2. Distribution of average values of digital orientation parameters – SE vs. ME

The values of Skewness and Kurtosis further support the observed patterns. In small enterprises, the response distributions are mostly symmetric ($Sk \approx 0$) and moderately flat ($Ku < 3$), indicating a balanced spread without extreme ratings. In contrast, medium-sized enterprises show more negative skewness and elevated Kurtosis ($Ku > 3$), suggesting a concentration of higher ratings and more polarized opinion.

The correlation analysis (*Table 2*) reveals strong, statistically significant relationships between aspects of digital orientation in small enterprises. The highest correlation is between V1 (budget for digital solutions) and V6 (profitability), $r = 0.925$, followed by V5 (training programs) and V6 ($r = 0.766$), and V4 (agility) and V6 ($r = 0.747$), highlighting the link between investments in human resources, agility, and profitability. Significant correlations also exist between V1 and V5 ($r = 0.754$), V4 and V5 ($r = 0.645$), and V3 and V5 ($r = 0.355$), indicating strong ties between technical and organisational factors. V2 (strategic planning) shows low correlations, suggesting weak alignment between strategy and digital transformation.

Table 2. Pearson Correlation Coefficients for Small Enterprises

N = 323	V1-SE	V2-SE	V3-SE	V4-SE	V5-SE	V6-SE
V1-SE	1.000					
V2-SE	0.017	1.000				
V3-SE	0.366	0.074	1.000			
V4-SE	0.705	0.043	0.243	1.000		
V5-SE	0.754	0.032	0.355	0.645	1.000	
V6-SE	0.925	0.001	0.373	0.747	0.766	1.000

In medium-sized enterprises, the correlation analysis (*Table 3*) reveals strong relationships between aspects of digital orientation. The highest correlation, $r = 0.919$, is between V3 (investment in new technologies) and V6 (profitability), indicating a strong link between technology investments and profitability. High correlations are also observed between V1 (financial resources) and V3 ($r = 0.820$), and V1 and V6 ($r = 0.759$), suggesting a close tie between financial resources, technology investments, and business outcomes. Moderate correlations between V3 and

V5 ($r = 0.595$), and V5 and V6 ($r = 0.547$) highlight the role of employee development in enhancing performance. In contrast, correlations involving strategic planning (V2) are low and insignificant, indicating weak integration of strategy into digital transformation. These results suggest that profitability in medium-sized enterprises is primarily driven by technology investments, with strategic planning playing a secondary role.

Table 3. Pearson Correlation Coefficients for Medium Enterprises

N = 417	V1-ME	V2-ME	V3-ME	V4-ME	V5-ME	V6-ME
V1-ME	1.000					
V2-ME	0.090	1.000				
V3-ME	0.820	0.078	1.000			
V4-ME	0.272	0.044	0.238	1.000		
V5-ME	0.663	0.142	0.595	0.186	1.000	
V6-ME	0.759	0.112	0.919	0.222	0.547	1.000

The correlation and variance analysis reveals strong interdependencies within digital orientation dimensions and notable differences between small and medium-sized enterprises. In small enterprises, the highest correlations were between V1 (budget allocations) and V6 (profitability) – $r = 0.925$, and between V5 (training) and V6 ($r = 0.766$), linking digital investment with business outcomes. A similar pattern was observed in medium-sized enterprises, with the strongest correlation between V3 (investment in new technologies) and V6 (profitability) – $r = 0.919$, and significant links with V1 and V5. However, in both groups, strategic planning (V2) showed low correlations, indicating weaker operational integration.

Table 4. ANOVA Results by Enterprise Type

V1	SS	df	MS	F	p
Treatment	96.760	1	96.760	127.47	0.00001
Error	555.828	738	0.753		
Total	652.578	739			
V2	SS	df	MS	F	p
Treatment	89.364	1	89.364	75.66	0.0001
Error	871.635	738	1.181		
Total	960.999	739			
V3	SS	df	MS	F	p
Treatment	246.595	1	246.595	358.48	0.0001
Error	507.669	738	0.688		
Total	754.264	739			
V4	SS	df	MS	F	p
Treatment	31.507	1	31.507	43.53	0.0001
Error	534.183	738	0.724		
Total	565.691	739			
V5	SS	df	MS	F	p
Treatment	217.319	1	217.319	404.70	0.0001
Error	396.296	738	0.537		
Total	613.615	739			
PV6	SS	df	MS	F	p
Treatment	21.090	1	21.090	28.68	0.0001
Error	542.673	738	0.7353		
Total	563.762	739			

The ANOVA analysis (Table 4) reveals statistically significant differences between small and medium-sized enterprises across all six

variables ($p < 0.05$). The highest F-values were observed for employee training programs (V5: $F = 404.70$), investment in new technologies (V3: $F = 358.48$), and digital resources allocations (V1: $F = 127.47$). Lower, yet significant values ($p = 0.0001$) were found for V2, V4, and V6. These results highlight the substantial impact of enterprise type and investment priorities on shaping digital orientation perceptions and business performance outcomes.

In the following section, a regression analysis using the least squares method was conducted, with profitability perception (V6) treated as the dependent variable and the remaining variables (V1-V5) as independent variables to calculate the linear regression equation.

Table 5. Linear Regression (Small Enterprises)

Dependent Variable: 6SE				
Method: Least Squares				
Sample (adjusted): 323				
Included observations: 323 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.030	0.102	0.294	0.7687
V1-SE	0.704	0.033	21.334	0.0000
V2-SE	-0.020	0.015	-1.265	0.2067
V3-SE	0.038	0.023	1.650	0.0099
V4-SE	0.178	0.030	5.923	0.0000
V5-SE	0.137	0.039	3.533	0.0005
R-squared	0.880	Mean dependent var	3.533	
Adjusted R-squared	0.878	S.D. dependent var	0.933	
S.E. of regression	0.326	Akaike info criterion	0.612	
Sum squared resid	33.594	Schwarz criterion	0.682	
Log likelihood	-92.792	Hannan-Quinn criter..	0.640	
F-statistic	465.803	Durbin-Watson stat	1.945	
Prob (F-statistic)	0.000			

The regression results for small enterprises (Table 5) show a statistically significant model ($F = 465.803$; $p < 0.001$), explaining 88% of the variance in V6 ($R^2 = 0.880$). The strongest influences on profitability perception are digital solution allocations (V1; $\beta = 0.704$), agility (V4; $\beta = 0.178$), and training (V5; $\beta = 0.137$). V3 and V2 have weaker effects, with V2 being insignificant ($p = 0.2067$). The Durbin-Watson statistic (1.945) confirms the model's stability and no significant autocorrelation in residuals.

Table 6. Linear Regression (Medium Enterprises)

Dependent Variable: 6ME				
Method: Least Squares				
Sample (adjusted): 417				
Included observations: 417 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.154	0.113	1.356	0.1759
V1-ME	0.020	0.036	0.537	0.5913
V2-ME	0.032	0.015	2.1028	0.0362
V3-ME	0.802	0.034	26.644	0.0000
V4-ME	0.002	0.019	0.084	0.9328
V5-ME	-0.013	0.029	-0.465	0.6420
R-squared	0.846	Mean dependent var	3.873	
Adjusted R-squared	0.8445	S.D. dependent var	0.794	
S.E. of regression	0.313	Akaike info criterion	0.530	
Sum squared resid	40.296	Schwarz criterion	0.588	
Log likelihood	-104.467	Hannan-Quinn criter..	0.553	
F-statistic	452.795	Durbin-Watson stat	1.670	
Prob (F-statistic)	0.000			

For medium-sized enterprises (Table 6), the regression model is statistically significant ($F = 452.795$; $p < 0.001$), explaining 84.6% of the variance in V6 ($R^2 = 0.846$). The strongest influence comes from V3 (investment in new technologies; $\beta = 0.802$; $p < 0.001$), while V2 (strategic planning) shows a weaker, yet significant positive effect ($\beta = 0.032$; $p = 0.0362$). V1 (budget allocations), V4 (agility), and V5 (employee training) were not significant ($p > 0.05$), indicating no effect on profitability. The Durbin-Watson statistic (1.670) confirms the stability of the model.

The differences in digital orientation between small and medium-sized enterprises reflect divergent development strategies. In small enterprises, profitability is driven by agility and employee development, while in medium-sized enterprises, technological investments are key. These findings underscore the need for tailored digital strategies, emphasizing agility and human capital in small businesses and strategic technology investments, specifically in medium-sized enterprises.

5. CONCLUSION

The results clearly confirm that digital orientation significantly impacts the profitability of SMEs, with the patterns of this impact differing based on the size of the organization.

In small enterprises, key drivers of higher profitability include strategic investments in digital solutions, decision-making agility, and employee training. These factors highlight the operational dimension of digital orientation, essential for success in smaller firms, where quick flexibility compensates for limited resources. Statistical findings confirm these variables as the strongest predictors of profitability perception, emphasizing their role in shaping business outcomes.

In medium-sized enterprises, the main driver is investment in advanced technologies, with strategic planning playing a secondary role. Agility and employee training have minimal impact on profitability, emphasizing the focus on technological investments. With greater financial resources and digital transformation capacity, these enterprises are better equipped to tackle market challenges, enhancing resilience and competitiveness.

The findings from variance and correlation analysis strongly confirm that the differences between small and medium-sized enterprises are not only quantitative but also qualitative, reflecting distinct approaches and priorities in the implementation of digital orientation. Statistically significant differences in the evaluation of all observed dimensions underscore the urgent need for differentiated approaches in crafting development strategies and support policies

tailored to the unique needs of each sector.

Digital orientation has proven to be a critical driver of business efficiency and competitiveness. Its impact on profitability is particularly significant when it aligns with the company's actual capabilities and strategic direction, further emphasizing the need for a carefully structured, purpose-driven approach to digital development in the small and medium-sized enterprise sector. This underscores the need for a purpose-driven, strategic approach to digital development within the sector, ensuring digital initiatives are closely tied to organizational goals, long-term growth, and overall business sustainability.

The study's limitations include a narrow sample of enterprises from Belgrade, which may limit the generalizability of the results, as well as potential subjectivity in self-assessments using the Likert scale. Moreover, the focus on profitability excludes other important performance indicators, such as growth, profit, and market share, which are also crucial for assessing overall business success. Recommendations for small enterprise managers emphasize improving decision-making agility and investing in employee training, while medium-sized enterprises should prioritize technological investments and incorporate strategic planning into their business strategies. Future research could explore longitudinal studies to assess the impact of digital orientation over time, comparative studies of SMEs across different regions, and qualitative approaches, such as manager interviews. Ultimately, these avenues of research could enhance the understanding of the broader implications of digital orientation and its critical role in fostering sustainable business growth.

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