

Impact of Digitalization on Small and Medium Enterprises: Challenges and Opportunities

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ABSTRACT	ARTICLE DETAILS
SMEs have a better chance of surviving in the twenty-first century by embracing digitization. The purpose of this paper is to examine the currently underlying digitalization among SMEs and to assess digitalization's impact on the performance of SMEs. The owners and managers of SMEs in Sunsari district are respondents to the study. A total response of 162 respondents was collected through interviews and standardized questionnaires. Responses were analyzed through regression analysis to examine relationships, and correlation analysis to gauge the degree of relationship between variables, using SPSS software. The revealed result shows that the best indicators of business revenue are internet access and power backup. Digital skills and infrastructure have weak associations with revenue. Likewise, investment in infrastructure and digital skills can increase revenue. Overall, the model is statistically significant, suggesting a reasonably strong correlation between independent variables and dependent variables. The study's results offer strong proof that digitization increases operational effectiveness and generates a sizable rise in revenue. Embracing digital methods and strategies has become essential for SMEs to stay competitive in today's rapidly evolving marketplace. In essence, the study underscores the importance of leveraging digitalization as a key driver for success in SMEs. Future studies could analyze the sector-specific effects of digitalization on the regional variation of SME enterprises in Nepal. KEYWORDS: Digital Literacy, power back-up, business revenue, Digitalization, Internet access	Published On: 17 July 2025 Available on: https://ijmir.com

1. INTRODUCTION

The world is becoming smaller because of the development of cutting-edge digital platforms. Digital tools play the predominant role in various sectors. As the world is venturing the fourth phase of Industrial Revolution (IR4.0), concern on digitalization in business processes is also rising (Sued, N.M.N., 2020). Similarly, digitalization has made a noteworthy contribution to the corporate world. Most people agree that small and medium-sized businesses are essential to any country's economic growth. Since many industries and businesses are under a lot of pressure to switch to digital operations, digital transformation is a major challenge for SMEs today (Shettima, M.et.al, 2020). The establishment of SMEs promotes high output and job possibilities, both of which aid in the growth of the country. To take advantage of opportunities and eliminate threats to their business, entrepreneurs should think about integrating digitization into SMEs.

In terms of the implications for policy, offering government assistance aimed at improving small business digitalization may have a synergistic effect, encouraging digitalization while also improving innovation performance (Radicic, D.et.al, 2023). As the supportive bodies of the nation, the government plays a vital role in empowering entrepreneurs by providing necessary assistances they need to overcome the digital competitive advantage.

For the least developed countries to overcome their existing challenges, digitization of business processes increases transaction efficiency, expands their client base, and lowers costs and effort (Saleh, M. A. K, et.al 2020). These days, digitalization and online distribution systems are used to promote goods and services, cutting down on the expense of pointless channels that highlight price reductions in developing nations. Accelerating the digitalization of domestic businesses and utilizing digital technology effectively in

management will boost their profitability and competitiveness, which will ultimately lead to sustained growth (Shevtsova, H.et.al,2020). Smooth operation of home businesses is facilitated by the use of digital technologies. This change satisfies the needs and desires of the market, which propels the company's steady expansion. Comprehensive and successful digital transformation strategies meant to increase sales and awareness (Dangol. S, 2020). Business is always evolving in the modern knowledge-based economy, and SEMs are continuously challenged to come up with fresh, creative ways to adapt to the quick changes (Curraj,E.2018) . Adapting the changes of environment may be the opportunities for the SMEs. Due to a number of factors, including high interest rates, significant collateral requirements, procedure annoyances, a lack of information, and insufficient institutional capacity, SMEs in Nepal have limited access to financing (NRB 2019).

In case of Nepal, the Industrial Enterprises Act of 2020, defined small, medium and large enterprises as small-scale industries (SSI) are businesses, excluding microbusinesses and cottage industries, that have fixed capital of no more than NPR 150 million. Businesses with fixed capital between NPR 150 million and NPR 500 million are classified as medium industries. In a same vein, businesses with fixed capital surpassing NPR 500 million are considered major industries. These industries, which include manufacturing, mining, infrastructure, tourism, information technology, energy-based industries, and service industries, are categorized according to the kind of commodities or services they create (Industrial Enterprises Act, 2020).

SMEs' digital transformation is becoming increasingly well-known, indicating a crucial intersection in the worldwide effort to achieve sustainable development (Ozturk,I.et.al.2024). Implementing the digital tools in SMEs help to enhance the enterprises within the country which creates the job opportunity on one hand and allocation of resources in optimum way in next hand. By implementing digital technology, SEMs can increase their production and efficiency, giving them a competitive edge over their rivals (Saleem, H, et.al, 2021). SME owners can create a direct line of communication between buyers and suppliers and interact closely with other stakeholders by implementing digital technology platforms (Chatterjee,S.et.al, 2022).

2. LITERATURE REVIEW

Nigerian SMEs are greatly impacted by digitalization, and they are stated to face several difficulties, including a lack of training in digital strategy, a lack of use of digital technology, and a lack of cybersecurity. The operation of SEMs is improved by digitization, which also boosts economic growth, reduces poverty, creates business opportunities, and increases employment chances (Shettima, M., 2020). The impact of digitization on innovation appears to vary depending on the organization. In SEMs that innovate without engaging in internal research and development, digital transformation has a good impact on the chance of innovation (whether it be process, product, or both) (Radicic. D. et.al.2020).

The relationship between digitalization and SEM performance was tempered by the availability of government support, suggesting that government initiatives—particularly microloans and fintech assistance—are crucial to optimizing the advantages of digitalization (Alsedrah, I. et.al,2023). The stability of a corporation can be severely impacted by information security issues. Implementing digital technologies is hampered by the high cost of hardware and software, a lack of infrastructure, and a failure to encourage the spread of digital technologies in the SMEs sector (H. Shevtsova,et.al,2020). The degree of digitization and the integration of digital technologies greatly improve corporate success in terms of employment and value-added growth. Process simplification, increased efficiency, and improved customer experience are key components of digitalization in SEMs, which will ultimately promote corporate expansion and development (Kádárová, J,et.al.2023).

There is no correlation between the digital transformation process and SEMs' dynamic capabilities. There is no substantial correlation between digital literacy and the digital transformation of SMEs, and digital literacy are negatively correlated with digital transformation (Civelek,M,et.al,2023). The economy's digitalization has produced a new business climate in which companies can conduct operations and provide services via digital platforms and online. Traditional models have been transformed into modern ones due to digital funding (Thathsarani,U.S,et.al,2022).

The strategy to boost the expansion of added value and the employment of SMEs is to adopt at least basic digital technologies and sell exclusively through them. The primary obstacles to SMEs' digitization have been found to be a lack of education, expertise, or funding for the use of cutting-edge technology (Roman, A., et.al,2022). Customer connections are greatly impacted by the business's simple accessibility thanks to digital transformation. The findings also show that the majority of SMEs have effectively adopted digital marketing and online sales as their top digital platforms (Malhotra, G., et.al, 2024). Managers may make better decisions faster and with greater knowledge by improved data access and sophisticated analytical tools, which promotes responsiveness and agility in company operations. Customer support has significantly improved because to digital technologies like support software and customer relationship management (CRM) systems, which allow for better issue monitoring, individualized assistance, and quicker response times (Adhikari, S. N., et.al,2014).

3. OBJECTIVE OF THIS RESEARCH

The paper thus, examines the currently undergoing digitalization among SEMs and assess the digitalization impacts on performance of SMEs in Nepal. Further, the paper focuses to the business revenue of SEMs that may be impacted by digital infrastructure, digital literacy, internet access and power backup. Of the various mechanism of digitalization, only infrastructural factors are given emphasizes on the study. The study focuses on SMEs in the city area, ignoring those in rural areas. Additionally, it does not cover micro level enterprises and does not focus on digitalization promotion tools like (social media campaigns like Facebook, Instagram, YouTube, and others). Further research should focus on other various aspects of digitalization, such as digital financing, digitalization on supply chain and logistics, etc., in the sense of development of SMEs in the nation.

4. THEORETICAL FRAMEWORK

Although digital literacy has been a problem in the digital transition, SMEs are concerned about and interested in improving the digital literacy of their staff. The resources-based view (RBV) for SMEs may be a useful way to lessen the challenges (Civelek,M,et.al,2023). Companies can obtain a competitive edge by identifying and utilizing resources with the aid of the RBV model. An organization's internal resources are the main emphasis of the RBV model. The Technology Acceptance Model (TAM) and digital financing have a significant impact on the performance of SMEs. Financial inclusion and performance in SMEs are positively mediated by digital finance and TAM (Thathsarani,U.S.,et.al,2022). Paper focused on Resource-Based view (RBV), Technology Acceptance Model (TAM) and Theory and Planned Behavior (TPB). The concept suggests that investing in these areas can directly improve business performance by looking at how these aspects interact with business operations. Among the variables in the paper, business revenue is outcomes, infrastructure, power back up and internet access are based on the resources based view (RBV) and digital literacy is based on Technology acceptance model (TAM) as it shapes perception of the utility of digital technology and also based on theory planned behavior (TPB) as it influences attitude and intentions towards adopting digital technology.

A mathematical or statistical model to test the hypothesis

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where,

X1=Infrastructure

X2= Digital Literacy

X3= Internet access

X4= Power backup

Y =Business revenue

β_0 = intercept

$\beta_1, \beta_2, \beta_3$ and β_4 are coefficient.

ϵ = error term

Hypothesis

Ho: Digitalization has no significant impact on SMEs.

H1: Digitalization has a significant impact on SMEs.

Conceptual Framework

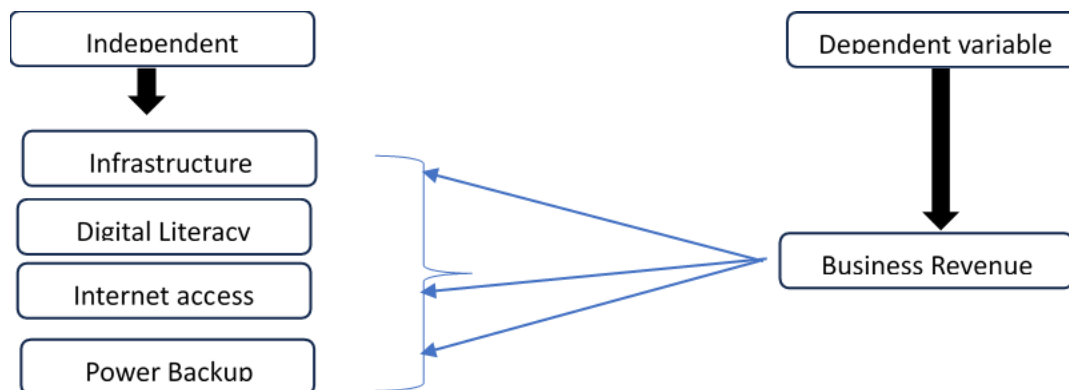


Figure 1: Framework of dependent and independent variables

Sources: Unpublish Manuscript (Develop by Author)

5. RESEARCH METHODOLOGY

The relationship between business revenue and digitalization infrastructure is investigated using a qualitative study design. The quantitative approach is utilized to determine the influence of the factors. In order to gather responses, a series of structured questionnaires were created and distributed to the respondents via WhatsApp and email. A 5-point Likert scale was used to measure respondents' opinions in all of the closed-ended questions and interview. All 54 respondents' responses were gathered, and the study's goal was explained. To maintain anonymity, all answers were kept secret and confidential, and personal identifiers were eliminated. The respondents were the owner of small and medium-sized enterprises in Nepal's Sunsari district. The collected response was analyzed using descriptive statistics. The Pearson correlation coefficient is used to evaluate the direction and intensity of the linear association between the independent variables and the regression model was taken into consideration to examine the cause-and-effect relationship between dependent variables using SPSS software.

Table 1. Demographic Profile of the Respondent

Variables	Category	Frequency	Valid Percent
Gender	Male	145	90
	Female	17	10
Age Grouped	30-35	33	20
	35-40	87	54
	40-45	42	26
Business Types	Manufacturing	12	7
	Retailing	109	67
	Service	35	22
	Agriculture	6	4
Role in Business	Owner	123	76
	Manager	39	24

The table is used to understand the distribution of demographic table for a survey. The table displays survey results pertaining to demographics and business, classifying participants according to their age, gender, type of business, and position within the company. Survey was conducted with 162 responses as it is the sample size of this study. Among the respondents 90% was male and 10% was female respectively. According to the age distribution, 20% of respondents are between the ages of 30 and 35, 54% are between the ages of 35 and 40, and 26% are between the ages of 40 and 45. Retailing accounts for the biggest percentage of business kinds (67%) followed by service businesses (22%), manufacturing (7%), and agricultural (4%). Last but not least, 24% of respondents identify as managers and 76% as owners of businesses. This data gives a clear picture of the population that was surveyed and shows that male business owners, who are mostly between the ages of 35 and 40, dominate the retail industry.

Table 2. Regression Analysis

Variables	Coefficient	P- value
Infrastructure	-.689	.230
Digital Skill	.081	.112
Internet Access	.248	.010
Power Backup	.183	.017
Business Revenue	.542	.000
Observation	162	
R square	.474	
Adjusted R square	.460	
F-statistics	35.350	

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The findings of a multiple regression study, which looks at the relationship between several independent variables (Digital Skill, Internet Access, Infrastructure, and Power Backup) and the dependent variable (Business Revenue), are shown in the table. Given that the infrastructure coefficient is negative, it suggests that inadequate infrastructure will have a detrimental effect on the dependent variable. The dependent variable is slightly positively impacted by the improved digital proficiency. Better internet connectivity favorably affects the dependent variables since it has a substantial positive influence on SMEs' business revenue. Similarly, the availability of power backup has a substantial beneficial impact on business revenue, indicating that it contributes to increased business revenue. Furthermore, approximately 47% of the variance in the business revenue is explained by (Infrastructure, Digital skills, Internet access, and Power backup).

Table 3. ANOVAa

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	597.372	4	149.343	35.350	.000 ^b
	Residual	663.270	157	4.225		
	Total	1260.642	161			

a. Dependent Variable: Business Revenue

b. Predictors: (Constant) Infrastructure, Digital skills, Internet access, and Power backup

According to the ANOVA table, the F-statistic value of 35.350 indicates a high value, while the sig (p-value) of 0.000 indicates a value below 0.05. As a result, business revenue is significantly impacted by the independent variables (power backup, infrastructure, digital skill, and internet access) while taking together.

6. DISCUSSION

There is a slight difference between the gender groups in terms of internet access because the p-value is closer to 0.05 (i.e., $p=0.065$), but there is no significant difference between the dependent and independent variables on the perception of gender. Similarly, SMEs owner and manager has the significances difference in perception of power backup as the p-value is 0.037. Likewise, the perception of Internet access is near to significance, indicating that there might be a slight variation but not enough to be statistically verified. Other variables Infrastructure and Digital skill are not significantly different. The model is statistically significant ($p>0.05$) because at least one dependent variable has a substantial impact on business revenue. The alternative hypothesis is accepted, and the null hypothesis is rejected since at least one dependent variable explains a significant portion of the variation in dependent variable.

7. RESULT

In a similar vein, spending money on internet connection and power backup can greatly enhance company performance. To boost economic growth, the Malaysian government has encouraged SMEs to adopt digitalization alongside larger corporations (Sued, N.M.N, 2020). The government can play a supportive role in infrastructure enhancement and the digital skills of young entrepreneurs, which will encourage new businesses to operate smoothly. The relationship between digitalization and SMEs' performance was mitigated by the availability of government support, suggesting that government initiatives—particularly microloans and fintech assistance—are crucial to optimizing the advantages of digitalization (Alsedrah, I, 2023). Government support like grants, subsidies, loans, flexible policies, etc on infrastructure and technology helps to increase the revenue of the SMEs in the nation. Digital skill and infrastructure, however, have no statistically significant impact on this model. Overall, the model is statistically significant and explains 47.4% of the variation in the dependent variable, suggesting a reasonably strong correlation between the independent and dependent variables. The total regression model is statistically significant, as indicated by the Anova table's F-statistics of 35.350 and $p>0.05$. This finding implies that internet access and power backup have a big influence on company profits.

8. CONCLUSION

Due to the era of digital transformation, it is being easier for the entrepreneurs to run their enterprises with the effective use of digitalization mechanism. The result of this paper shows that the best indicators of business revenue are Internet access and power backup. The expansion of SMEs is hampered by a lack of digital skills, to address this scenario, contemporary training programs and motivational materials are required (Shevtsova, H., 2020). Revenue can also be increased by employees' digital skills, but this should be leveraged through various skill-development programs. Since infrastructure (computers, servers, and software) has a non-significant effect on business revenue, so infrastructure must be taken as consideration factors to increase the revenue of SMEs but, investing in infrastructure alone may not be enough, it should be paired with digital skills and technological advancements.

9. LIMITATION

The study only looked at small and medium-sized businesses in cities; it didn't look at microbusinesses and SMEs in rural areas. Every facet of digitalization that affects SMEs cannot be explained by the factors utilized in this paper. SMEs and their management must constantly implement dynamic strategies since developing digitalization is a dynamic process. Therefore, future research should explore the geographic regions as well as emerging aspect that impact the SMEs. It will be more important than ever for organizations to comprehend how digitalization drives revenue as they continue to navigate the digital landscape.

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