

Linkage of Digitalization and Perceived Organizational Performance of Small and Medium Enterprises

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Abstract

The purpose of this empirical research is to assess the impact of digitalization on perceived organisational performance in all areas of Small and Medium Enterprises (SMEs) in India's rubber products manufacturing industry. The study employs a quantitative research method with an explanatory research design. The study's primary data is gathered through surveys of top-level officials and IT managers from SMEs in the rubber products manufacturing industry. The normality and reliability of the data are assessed first using SPSS 22, followed by assessments of internal consistency, divergent validity, convergent validity, and discriminant validity using maximum likelihood estimation of the CFA. The structural equation modelling approach was chosen as the statistical instrument that enables researchers to look at complex interactions between several variables in parallel based on the nature of the research questions, the data that are available, and the theoretical underpinnings of the study. It is identified through this study that major digital technology measures such as Usefulness of Web Portals (UWP), Customer Interface through Web Portals (CIWP), and Major Functionalities of Web Portal (MFWP), Use of Online Activities in Marketing Efforts (OAME), Online Advertisements and Promotion (OAP), Availability of Trained and Skilled Employees (ATSE), and Technological Resources (TR) have a statistically significant impact on the performance of SMEs. The study results provide policymakers with insights into how to provide special incentives and exemplary services to SMEs in order to promote the digitalization in the rubber products manufacturing industry. This study expands the scope of the investigation of the adoption and diffusion of digital technology by measuring the impact of a broad range of digital technologies on SMEs.

Keywords: Adoption of Digital Technology, Digitalization, Perceived Organizational Performance, Rubber Products Manufacturing Industry, Small and Medium Enterprises (SMEs), Sustainable Development, Web Portal

1. Introduction

In the context of fast evolving digital technology, all the enterprises have to be receptive to digitalization. "Digitalization" is defined as the reorganization of many domains of social life around digital communication and media infrastructures (Brennen,

2016)". With a more business-oriented perspective, Gartner (2019) defines "digitalization" as "the use of digital technology to change a business model and provide new revenue and value-producing opportunities". There is a greater demand for extensive studies to measure the adoption of technology by SMEs, as these organizations, which constitute 90%

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of the total enterprises of India, play a vital role in the equitable development of the economy as well as in the greater employment generation (Mcgregor & Pouw, 2016). The benefits of digitalization can be reaped by both the large and SMEs (Albano, 2000). Even if it offers ample potential benefits to SMEs, the adoption of digital technology by the SMEs remains limited (Vrontis *et al.*, 2022). Hence the need to research the adoption and usage of digital technology in the Small and Medium Enterprises is of utmost importance. The aim of this paper is to analyse data on major digital technology measures and their potential impact on SMEs' performance in order to identify those that may determine a company's success.

Organizational performance refers to three specific areas of firm outcomes, namely, a) financial performance like profits, Return on Assets (ROA) and Return on Investments (ROI) etc.; b) product market performance like sales, market share etc.; and c) shareholder return like total shareholder return, economic value added, etc., (Egbunike & Okerekeoti, 2018). This study uses subjective measures of organizational performance for the following reasons. It covers all types of industrial units: public limited, private limited, family-owned, unionized and non-unionized, medium scale and small-scale sector units. Having multiple objectives and comparing short-term financial results may not make sense.

The importance of SMEs in the development of emerging nations is well established in the literature (Kula & Tatoglu, 2003). The benefits of digitalization can be reaped by both the large and SMEs (Amaral & Peças, 2021). Even if it offers ample potential benefits to SMEs, the adoption of digital technology by the SMEs remains limited (Garzoni *et al.*, 2020). The relationship between digital technology adoption and performance varies across countries, industries, and firms (Chege *et al.*, 2020). As a result, conducting research on the adoption and use of digital technology in small and medium-sized units in the selected industrial sector is critical. The current study is an attempt to investigate the use of digital marketing strategies by rubber product manufacturers and its impact on the perceived organizational performance of SMEs.

2. Review of Literature and the Conceptual Model

Small and Medium Enterprises in developing economies confront a lot of challenges in the international market with the increased competition (Abor *et al.*, 2010). The major forces which contribute towards the intense competition include technological advancements, faster growth of markets in the international landscape, changed customer needs and adoption and use of electronic commerce (Ahmad *et al.*, 2015). The increased competition demands for the SMEs to adopt digital technology, one of the prominent factors which may leads to the growth competitiveness and sustainable development of SMEs (Ahmedova, 2015). This existing situation indicates the relevance of extensive research on the effect of adoption of digital technology on the organizational performance of SMEs. Extensive Studies are undertaken in the literature on the impact of digital technologies on various economies and societies. Research on ICT and operational performance of enterprises concentrated mainly on efficiency of market (Tarutė & Gatautis, 2014), while other studies focused on competitive advantage because of adoption of digital technologies (Chao & Chandra, 2012; López *et al.*, 2021). It is identified through a number of studies that organizational performance can be enhanced through the implementation of Information Technology tools in various enterprises (Zhou, 2016; Luftman *et al.*, 2017). Studies by Hernandez (2016) shows that the technology adoption leads to economic growth, and economic growth leads to digital adoption. The measures of adoption of digital tools in the existing literature covers major aspects such as investment in digitalization, as well as usefulness of web portals, customer interface through web portals, major functionalities of web portal (Kotarba, 2017). A few studies have explored the users of web portals of SMEs to connect the variables organizational performance and user interface (Chen *et al.*, 2016; Chege *et al.*, 2020).

Studies are conducted on the impact of digital technology on the equitable development of an economy as well its employment generation capacity (Solomon *et al.*, 2020). Indu Khurana *et al.* (2022)

conducted research on digital adoption by SMEs during the COVID-19 pandemic crisis and discovered that digital transformation enables small and medium enterprises to build resilience. They had taken a qualitative research approach, employing a case study method. Several studies in the construction and real estate industries by Farida *et al.* (2022) have identified a link between SMEs' performance, innovation, and competitive advantage. Furthermore, they have investigated the positive impact of better strategy adoption on organizational performance and competitive advantage, whereas studies in the Korean manufacturing industry by Jang *et al.* (2022) have revealed a greater extent of the effect of manufacturing system levels on operational and performance efficiency, with the caveat that such a relationship may vary across different manufacturing systems. According to research conducted in Vietnamese SMEs, technology adoption in the sector promotes innovation (Bui *et al.*, 2022), while Bracci *et al.* (2021) after investigating the factors influencing block chain technology adoption by SMEs, concluded that the rate of adoption in SMEs is very low in comparison to large industrial sectors in Italy. Based on the previous findings of the literature, the study has proceeded with the following main and sub postulates.

Ha1: Adoption of 'Digital technology' has a significant influence on the perceived organizational performance of SME.

Many studies have explored major digital technology adoption measures such as 'UWP (Ainin *et al.*, 2015; Parveen *et al.*, 2015), CIWP (Chen *et al.*, 2016), and MFWP (Abudaqa *et al.*, 2022; Chen *et al.*, 2016), OAME (Wardati & Mahendrawathi, 2019), OAP (Ahmad *et al.*, 2015), ATSE Prasanna *et al.* (2019), and TR (Khayer *et al.*, 2021; Reyes-Mercado *et al.* (2020)'. Based on these parameters, the sub hypotheses of the study are postulated as follows.

2.1 Usefulness of Web Portals (UWP) and Perceived SMEs Performance

A few studies have established the relationship between the usefulness of web portals and productivity

(Ainin *et al.*, 2015; Parveen *et al.*, 2015) has proved that usage of websites will enrich the experience of employees, which can be considered one of the outcomes of it. Chen (2016), in their study on digital transformation, postulated that the training imparted on web portals contributed towards the perceived performance of organizations. Hence, the first sub-hypothesis of the present study has been stated as follows.

Ha1.1: Usefulness of Web Portals (UWP) is positively related to perceived SME performance.

2.2 Customer Interface through Web Portals and Perceived SMEs Performance

Web portals act as channel for the industrial units to interact with various stakeholders, if it is user friendly. Earlier studies by Chen *et al.* (2016) have proved the relationship between user friendly portals and organizational outcome because of the customer interface through the web portal. While Yu *et al.* (2017) concentrated on the competitive advantage of it. Chen (2016) explored the possibility of increased customer reach. Thus, the second sub hypothesis has been framed as follows.

Ha1.2: Customer Interface through Web Portals (CIWP) is positively related to perceived SME performance.

2.3 Major Functionalities of Web Portal (MFWP) and Perceived SMEs Performance

Both existing and potential customers can be reached through a web portal as it acts as a medium for providing information as well as a medium of promotion (Chen *et al.*, 2016; Abudaqa *et al.*, 2022). It acts as an effective medium for global reach as it facilitates communicating with a wide range of target customers globally. Thus, the third sub-hypothesis is as follows.

Ha1.3: Major Functionalities of the Web Portal (MFWP) are positively related to perceived SME performance

2.4 Use of Online Activities in Marketing Efforts (OAME) and Perceived SMEs Performance

Studies conducted among marketing managers and IT personnel measuring the impact of the internet on SMEs' marketing activities raised certain concerns for the SMEs in their e-marketing provisions, as most of the SMEs are still functioning at a peripheral level and are in the initial stage of e-marketing activities (Wardati *et al.*, 2019). Hence it is ideal to explore the effect of e-marketing activities on SME business, and the fourth sub-hypothesis is postulated as follows.

Ha1.4: Use of Online Activities in Marketing Efforts (OAME) is positively related to perceived SME performance.

2.5 Online Advertisements and Promotion (OAP) and Perceived SMEs Performance

Studies on advertisement and promotional programs of SMEs through web portal have revealed that export-oriented SMEs are much benefited by the promotional measures taken by the Governments. Studies in this regard by Ahmad *et al.* (2015), Khayer *et al.*, (2021) and Reyes-Mercado *et al.* (2020) identified that more programs by the governments have greater impact on the export expansion strategies of SMEs. The study results suggest that export-oriented SMEs gain maximum from such promotional measures. In this context the fifth sub-hypothesis of the present study can be formulated as follows.

Ha1.5: Online Advertisements and Promotion (OAP) are positively related to perceived SME performance

2.6 Availability of Trained and Skilled Employees (ATSE) and Perceived SMEs Performance

Study results revealed that trained and skilled employees make the web portal more user-friendly which will ultimately help the organization to realize their objectives (Prasanna *et al.*, 2019; Khayer *et al.*, 2021; Reyes-Mercado *et al.*, 2020). Skilled employees facilitate the portal more user-friendly instead of confusing the end user. Hence designing the portal,

itself plays a major role in facilitating the user to learn and use it easily. As operation-friendly web portals contribute towards SME performance and hence sixth sub-hypothesis based on it can be stated as follows.

Ha1.6: 'Availability of trained and skilled employees (ATSE)' is positively related to perceived SME performance

2.7 Technological Resources (TR) and Perceived SMEs Performance

TR refer to investment in resources related to Information and Communication Technologies (ICT). Khayer *et al.*, (2021) and Reyes-Mercado *et al.*, (2020) in their study revealed that there exists a positive linkage between ICT adoption and the Perceived performance of SMEs, even if the result of the investment in such resources cannot be realized in the short term. A number of years of experience plays a crucial role in the attainment of expected outcome. Thus, the study derives seventh sub-postulates.

Ha1.7. Technological Resources (TR) is positively related to perceived SME performance.

2.8 Perceived Organizational Performance

Even though organizational performance is the most widely applied dependent variable in organizational research, it remains one of the most vaguely defined variables in the literature (Berberoglu *et al.*, 2018; Carmeli *et al.*, 2005). However, the most frequently used measures of organizational performance include financial, operational and market-based and overall productivity (Asghar, 2012; Penman *et al.*, 2010; Xie *et al.*, 2019). Based on the consistency in the performance measures and suitability in the selected industrial sector, the hypotheses of the study on perceived organizational performance are postulated as follows.

Ha2: Factors of digitalization have a significant impact on perceived financial performance of the organization

Ha3: Factors of digitalization have a significant impact on perceived operational performance of the organization

Ha4: Factors of digitalization have a significant impact on perceived market-based performance of the organization.

The conceptual model of the proposed study to validate and establish the relationships between the variables based on the theoretical framework is shown in Figure 1.

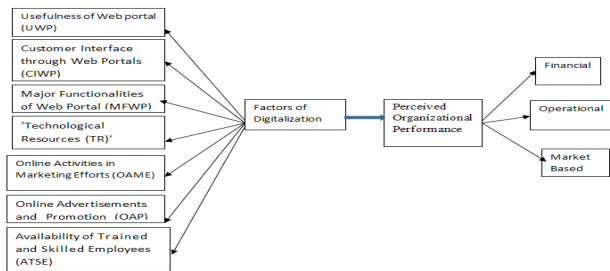


Figure 1. Conceptual model.

3. Research Design

The study employs a quantitative research method with an explanatory research design. The primary data for the study is gathered through questionnaires administered to the CEOs /IT managers of 1154 SMEs in the rubber products manufacturing industry, each of which consumes less than 50 metric tonnes of natural rubber. A perception survey of 1154 industrial units' CEOs/IT managers were conducted to assess the impact of the identified factors on perceived organizational performance.

3.1 Rationale of the Selection of the Industry

The rubber product manufacturing industry in India has experienced rapid growth in the last four decades, becoming a crucial sector for the Indian economy. With increased investments in R&D and infrastructure, India is poised to become a leader in the industry. The country's large population, manufacturing base, and competitive labour make it a unique industrial destination. With an extensive plantation sector, indigenous raw materials, and a growing reputation as an automobile hub, the industry plays a significant role in the economy of Kerala, India.

3.2 Sampling Design

The research was carried out among 1154 rubber-products-manufacturing industrial units in Kerala, with a geographical location in the state's central region and a good spread for their industrial base and business performance. Personal visits and face-to-face interviews were conducted, and 1154 people responded at an 80% rate. Because much of the information requested is considered highly confidential, this response rate is extremely impressive (Dilliman, 2014; Manzo & Burke, 2012; Aletta, 2018).

3.3 Methods and Tools Used

In the first stage, SPSS 22 is used to assess the data's normality, validity, and reliability. Factor analysis is then used to find a suitable structure that is assumed to exist within the multivariate observation set. Exploratory Factor Analysis measures the underlying variables that influence each scale dimension without predicting the structured outcome, whereas Confirmatory Factor Analysis predicts the structured outcome of previously investigated components and investigates any potential relationships between the predefined variables and items. The maximum likelihood estimation of CFA is used to assess internal consistency, divergent validity, convergent validity, and discriminant validity. Due to the complexity of the research questions, the availability of data, and the theory that guides this study, a structural equation model technique has been chosen as the statistical tool. This approach enables the evaluation of complex interactions among numerous variables in parallel. By generating regression equalities that explain the linkage of endogenous and exogenous variables, the current study involves measuring and disclosing the cause-effect linkages of diverse elements. This is done by employing a multivariate statistical analysis approach. A Structured Equation Model (SEM), which more thoroughly and accurately assesses all of the mentioned parameters, is used to test and enhance the theoretical model.

3.4 Model Construction

Multiple regression analysis is used to test the explanatory role of the proposed conceptual model.

The fitted model is $y = \alpha(\text{constant}) + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \epsilon$, where, y is perceived organizational performance of SMEs, the dependent variable, $X_1, X_2, X_3, X_4, X_5, X_6$ and X_7 are the independent variable. X_1 is Factor 1 (i.e., UWP), X_2 is Factor 2 (i.e., Customer Interface through Web Portals (CIWP)), X_3 is Factor 3 (i.e., MFWP). X_4 is Factor 4 (i.e., Use of OAME), X_5 is Factor 5 (i.e., OAP), X_6 is Factor 6 (i.e., ATSE). X_7 is Factor 7 (i.e., TR. Firm-specific features such as size, employee composition and age act as complementary factors to the adoption of digital technology (Melville *et al.*, 2004; Gunasekaran *et al.*, 2017; Cho, 2006). Hence, these factors are the expected intervening variables in the fitted model.

4. Data Analysis and Discussion

This study examines the impact of the adoption of digital technology by SMEs on organizational performance in the rubber products manufacturing industry in the state of Kerala in India. The direct impact of the independent variables on the dependent variable is assessed through the regression but the greatest advantage of Structural Equation Model (SEM) to regression and correlation analyses is that it reveals the indirect and latent impact of digitalization on perceived organizational performance. The regression analysis results indicate that 82% of the variance in the dependent variable is explained by the independent variable. The compatibility of the hypotheses of the study with the study results is established through Structural Equation Model. The research examined the impact of factors of digitalization on perceived organizational performance, where the analysis is conducted in different stages in which the cause-effect relationship between the variable is tested in the first stage.

Pooled cross section regression was estimated with data from 1154 plants covering both managerial and technical personnel. The descriptive statistics of the study are detailed in Table 1.

Table 1. Descriptive statistics on the profile of the units

Items	N	Minimum	Maximum	Mean	Std. Deviation
Year of existence	1154	1	2	1.87	.343
Number of	1154	4	5	4.84	.372
AIT1(WEB)	1154	1	1	1.00	.000
Number of PCs	1154	1	5	2.36	1.004
AIT2(CONNECTIVITY)	1154	2	3	2.97	.168
Networking of computers	1154	1	2	1.18	.388
Number of portals supporting the website	1154	0	2	1.11	.392
Number of IT personnel	1154	1	3	1.79	.455
Intranet or extranet facility	1154	1	1	1.00	.000
Valid N (list wise)	1154				

(Source: Expert Opinion Survey)

An expert opinion survey was conducted among top level managerial personnel of 100 industrial units to identify the relevant factors of digitalization of the selected industrial sector. Personal visits and face-to-face interviews were conducted, and questionnaires were pre-tested by top managers and academicians. A descriptive analysis was conducted to examine the mean values of every factor with deviation, and testing of the proposed model linking the adoption of digital technology and the perceived performance of selected SMEs was completed using a structured equation model. The reliability (Table 2) and validity (Tables 3 and 4) of the items used to measure the dependent and independent variables were evaluated using the reliability test and factor loading.

Table 2. Reliability test

S.I No.	Items	Mean	Standard deviation	N	Cronbach's α
1	Usefulness of Web Portals (UWP)	1.389	0.87775	1154	0.88
2	Customer Interface through Web Portals (CIWP)	1.13	.33905	1154	0.81
3	Major Functionalities of Web Portal (MFWP)	3.352	1.19996	1154	0.85
4	Use of Online Activities in Marketing Efforts (OAME)	2.019	0.96134	1154	0.87
5	Online Advertisements and Promotion (OAP)	2.204	0.85516	1154	0.88

6	Availability of Trained and Skilled Employees (ATSE)	2.63	0.91726	1154	0.94
7	Technological Resources (TR)	2.852	0.89879	1154	0.89
8	Financial Performance (FP)	2.677	0.58277	1154	0.92
9	Operational Performance (OP)	2.111	0.71814	1154	0.93
10	Market Based Performance (MP)	1.944	0.59611	1154	0.89

The Cronbach’s α values of all the items were above 0.8, which indicates the reliability of the constructs used in the study (Table 2). Construct validity is tested through factor loading in which item loading values of each item have shown a value greater than 0.5. Items which had factor loading values less than 0.5 were removed. Also, the correlation of each item to the total correlation is calculated, which was obtained as greater than 0.7, within the same construct. Hence convergent and discriminant validity were established (Tables 3 and 4). Multiple regression analysis is used to test the hypotheses of the study (Tables 7 and 8). All the seven independent variables sufficiently account for the variances in the dependent variables of the study, namely, Financial Performance (FP), Operational Performance (OP), and Market-Based Performance (MP).

Table 3. Divergent and convergent validity

Factors	Item	Factor Loading	CR (Composite Reliability)	AVE (Average Variance Extracted)
UWP	UWP1	0.719	0.880	0.605
	UWP3	0.796		
	UWP5	0.767		
	UWP6	0.846		
	UWP7	0.730		
CIWP	CIWP2	0.815	0.851	0.598
	CIWP3	0.719		
	CIWP4	0.796		
	CIWP6	0.767		
	CIWP8	0.846		
MFWP	MFWP2	0.730	0.890	0.675
	MFWP4	0.715		
	MFWP6	0.819		
	MFWP7	0.796		

TR	TR1	0.767	0.840	0.667
	TR3	0.846		
	TR6	0.730		
	TR7	0.715		
	TR8	0.819		
OAME	OAME2	0.796	0.830	0.589
	OAME3	0.767		
	OAME4	0.846		
	OAME6	0.730		
OAP	OAP1	0.715	0.845	0.635
	OAP3	0.819		
	OAP5	0.796		
	OAP8	0.867		
ATSE	ATSE2	0.846	0.866	0.678
	ATSE4	0.730		
	ATSE5	0.815		
	ATSE7	0.819		
POP	POP2	0.796	0.876	0.694
	POP5	0.867		
	POP8	0.846		
	POP10	0.830		

The divergent validity of the items is also established as the factor loading of all the selected items exceeded 0.5. The average variance extracted exceeded 0.50. Hence, convergent validity is achieved. The composite reliability is also secured as all the values are greater than 0.8. The values of factor loading, CR and AVE are displayed in Table 3.

Table 4. Discriminant validity

Variable	UWP	CIWP	MFWP	TR	OAME	OAP	ATSE	POP
UWP	1							
CIWP	0.65**	1						
MFWP	0.56**	0.73**	1					
TR	0.61**	0.65**	0.61**	1				
OAME	0.53**	0.54**	0.56**	0.67**	1			
OAP	0.45	0.43**	0.53**	0.62**	0.45**	1		
ATSE	0.61**	0.61**	0.52**	0.54**	0.51**	0.56**	1	
POP	0.50**	0.56**	0.51**	0.43**	0.43	0.64**	0.56**	1

Note: ** Correlation is significant at the 0.01 level (2-tailed)

The correlation analysis results indicate that the relationship between OAP and UWP and also OAME and POP is not statistically significant while all the other variables demonstrated a statistically significant

relation as $p < 0.01$. The discriminant validity of the item is confirmed by checking the inter-correlations among the constructs. Details are furnished in Table 5. It provided evidence of discriminant validity.

The present study used perceived organizational performance as the dependent variable and seven relevant factors of digitalization as the independent variable. To determine whether the digitalization factors have an impact on perceived organizational performance, the variable, perceived organizational performance is regressed against all the seven factors of digitalization. The fitted model is $y = \alpha(\text{constant}) + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon$, where, y is perceived organizational performance, the dependent variable, $X_1, X_2, X_3, X_4, X_5, X_6$ and X_7 are the independent variables. X_1 is Factor 1 (i.e., UWP), X_2 is Factor 2 (i.e., CIWP), X_3 is Factor 3 (i.e., MFWP). X_4 is Factor 4 (i.e., Use of OAME),

X_5 is Factor 5 (i.e., OAP), X_6 is Factor 6 (i.e., ATSE). X_7 is Factor 7 (i.e., TR, regarding the impact of all the seven factors of digitalization on perceived organizational performance, the regression results show a statistically significant effect of factors of digitalization on perceived organizational performance. The association between the dependent variable and independent variable is observed as statistically significant because the corresponding p -values are less than 0.05. One-tailed t -tests are reported for these coefficients because the hypotheses stated the signs of coefficients. The results of the regression analysis data in Table 5 show the effect of an independent variable on the three dimensions of perceived organizational performance. The results of the tests demonstrated a statistically significant positive impact on the three dimensions of perceived organizational performance. The results in Table 6 indicate that all the hypotheses are fully supported.

Table 5. Regression analysis and hypotheses testing

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.469	1.922		1.285	0.003
	Factor1	0.236	0.061	0.244	3.853	0.000
	Factor 2	0.210	0.196	0.175	2.103	0.020
	Factor 3	0.696	0.063	0.728	4.082	0.002
	Factor 4	0.100	0.196	0.162	2.012	0.000
	Factor 5	0.103	0.053	0.225	3.004	0.030
	Factor 6	0.112	0.198	0.176	2.022	0.002
	Factor 7	0.121	0.182	0.165	2.001	0.000

Table 6. Hypotheses testing

Variable	P Value	Accepted/Rejected
UWP → POP	0.0000**	Accepted
CIWP → POP	0.0200*	Accepted
MFWP → POP	0.0020*	Accepted
TR → POP	0.0002**	Accepted
OAME → POP	0.0300*	Accepted
OAP → POP	0.0023**	Accepted
ATSE → POP	0.0000**	Accepted

** represents level of significance at 1 percentage, *represents level of significance at 5 percentage

Table 7. Regression - ANOVA

Model	Sum of squares	df	Mean squares	F	Sig
Regression	23.138	4	5.784	5.655	0.001
Residual	50.122	49	1.023		
Total	73.259	53			
Total					

Table 8. Model summary of regression

Model	R	R Square	Adjusted R Square	Std. Error of the estimate
1	0.906	0.820	0.813	1.01138

Though all the seven factors are positively and significantly related to the dependent variable, the third factor, ‘Major Functionalities of Web Portal’ (MFWP), is the most prominent one, as the value of the regression coefficient associated with that factor is the highest one (B=0.696). Table 6 represents the status of acceptance/rejection of the hypotheses.

5. Results

One of the significant procedures in SEM approach is the assessment of whether a model fits the data (Yuan, 2005). The current study made use of the most reported fit indices and the cut-offs of these indices are examined to avoid the errors. Acceptable thresholds of the various fit indices with respect to the current study are displayed in Table 9. The χ^2/df of the collected data lies between 2 and 5 (Marsh *et al.*, 1995). The Root Means Square Error of Approximation (RMSEA) of all the factors are <0.100 (Brownie *et al.*, 1993). The comparative fit indices (CFI) values are >0.90 (George, 2018), while the Goodness of Fit Index (GFI) values are >.90 (Byrne *et al.*, 1994).

Table 9. Test of goodness of fitness of the model

Factors	χ^2	df	Normed χ^2	CR	VE (5)	RMSEA	CFI	GFI
UWP	8.19	3	2.79	0.88	56.8	0.085	0.98	0.95
CIWP	9.95	4	2.94	0.81	73.4	0.088	0.96	0.94
MFWP	7.81	7	1.79	0.85	66.8	0.095	0.92	0.95
TR	9.02	4	2.94	0.87	73.4	0.098	0.96	0.94
OAME	7.15	3	2.79	.88	76.8	0.085	0.98	0.92
OAP	10.02	4	2.94	.94	63.4	0.091	0.96	0.94
ATSE	9.93	3	1.79	.89	76.8	0.085	0.92	0.90
POP	8.12	4	2.94	0.92	78.4	0.098	0.94	0.94

The cause-effect relationship between the factors of digitalization and perceived organizational performance is established with the Structural Equation Model (SEM). The Structural Equation Model and the Direct, indirect and total effects between the variables in the model are represented in Tables 10 and 11 respectively.

Table 10. Structural Equation Model (SEM): Perceived Organizational Performance (POP) - The dependent variable

Variable	Estimate	S. E	P Value
UWP → POP	1.424	0.001092	0.0000**
CIWP → POP	0.211	0.014857	0.0200*
MFWP → POP	1.424	0.015684	0.0020*
TR → POP	0.143	0.011852	0.0002**
OAME → POP	0.800	0.000368	0.0300*
OAP → POP	2.321	0.002157	0.0023**
ATSE → POP	2.430		0.0000**
R-squared	0.820		

** significance at 01% level, * significance at 05% level

Table 11. Direct, indirect and the total effects between the variables in the model

Explanatory Factor	Dependent variable	Total Effects	Direct Effects	Indirect Effects
FoD	POP	0.162	0.162	0.000
	FP	0.597	0.421	0.176
	OP	0.878	0.878	0.000
	MP	1.879	0.645	1.234
	UWP	0.354	0.000	0.354
	CIWP	0.751	0.298	0.453
	MFWP	0.852	0.621	0.231
	OAME	0.643	0.000	0.643
	OAP	0.467	0.467	0.000
	ATSE	0.741	0.598	0.143
PoP	POP	0.731	0.000	0.731
	FP	0.576	0.400	0.176
	OP	0.764	0.764	0.000
	MP	1.357	0.123	1.234
	UWP	0.000	0.000	0.000
	CIWP	0.751	0.298	0.453
	MFWP	0.852	0.621	0.231
	OAME	0.643	0.000	0.643
	OAP	0.879	0.467	0.412
	ATSE	0.841	0.698	0.143
TR	0.994	0.721	0.273	

The Structural Equation Model of the study is presented in Figure 2. The Structural Equation Model (SEM) is used to enhance the results derived through the regression analysis, in which the statistically significant factors are considered. Following the

method ‘Maximum Likelihood Estimation’ of Kelloway (1998), the SEM is estimated.

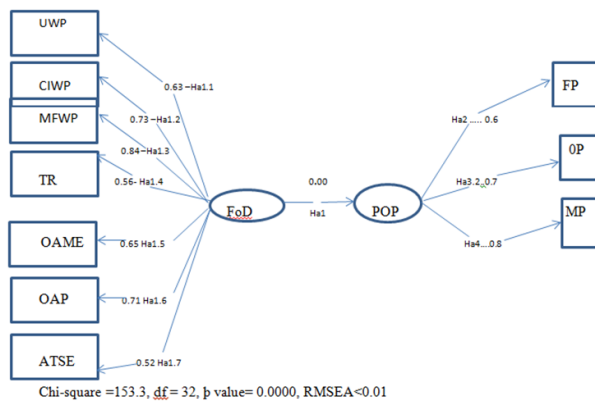


Figure 2. Structural Equation Model (SEM) of the study for confirming the hypotheses.

The findings of the study demonstrate a favourable and considerable influence of the chosen digitalization measures on the perceived performance of SMEs. Through this study, it has been determined that key aspects of digital technology, including the UWP, CIWP, Major Functionalities of Web Portals (MFWP), “use of OAME”, “Online Advertisements and Promotions” (OAP), ATSE, and TR, have a significant and favourable impact on the performance of SMEs. Major Web Portal Functionalities (MFWP) have been selected as the most important aspect of digitalization by the study. This is consistent with earlier research on the effect of SME digitization on enhanced organizational performance. Ahmad *et al.* (2015), Parveen *et al.* (2015), and Ainin *et al.* (2015) have all acknowledged that the mentioned factors enhance the performance of SMEs. According to the report, digitization is having a favourable impact on an organization’s operational, market-based, and financial success. Studies by Khayer *et al.* (2021), and Reyes-Mercado *et al.* (2020), which found a favourable correlation between ICT use and SMEs’ perceived performance, came to similar conclusions.

The empirical analysis revealed the following seven academic implications:

Empirical research shows that the usage of web portals as a digitization component has a positive effect on the financial, operational, and market-based performance of SMEs. Jahanshahi *et al.* (2012) earlier research also highlighted the importance of web portals in boosting corporate performance during enterprise digitization. According to research done by Ainine *et al.* (2015), social media has an effect on both financial and non-financial performance. This may be possible thanks to greater information accessibility and availability, enhanced customer relationship management, and cost savings through online marketing campaigns.

Secondly, it has been empirically demonstrated that enhanced online portal compatibility and interactivity are additional elements that boost performance when utilising the web.

Thirdly, the primary features of web portals have a more positive and significant impact on SMEs’ financial, operational, and market-based performance ($B = 0.696$, $p = 0.0020^*$). It makes it simpler to communicate with a range of target customers internationally, making it a great tool for addressing a global audience. In addition to serving as a platform for the transmission of information and advertising, a web portal can be utilised to engage with both present and potential customers (Chen *et al.*, 2016; Abudaqa *et al.*, 2022). The functionality of a web portal is thus one of the areas that SME owners can exploit for greater performance.

Fourthly, the majority of SMEs are still functioning at a low level and are in the early stages of e-marketing activities, according to studies on the usage of online activities in marketing campaigns (Wardati *et al.*, 2019; Honerkamp *et al.*, 2020). In order to support the significance of leveraging online activities in marketing campaigns for business development, the current study employed empirical analysis. The earlier conceptual study by Wardati *et al.* (2019) is not comparable to this.

Fifthly, it has been proven that OAP have a positive correlation with how SME performance is perceived. The current study empirically tested it against the backdrop of research on SMEs’ online marketing and

promotion campaigns. Studies in this field have shown that the government's promotion of export-oriented SMEs has a significant positive impact. The findings of the current study support the research by Ahmad *et al.* (2015), Khayer *et al.* (2021), and Reyes-Mercado *et al.* (2020) showing export-oriented SMEs benefit more from such promotional actions.

Sixth, the study's findings revealed a positive correlation between the perceived performance of SMEs and the availability of trained and competent staff (ATSE). The organisation is ultimately helped in reaching its aims by the trained and skilled employees who make the web portal more user-friendly (Prasanna *et al.*, 2019; Khayer *et al.*, 2021; Reyes-Mercado *et al.*, 2020). The portal is made more user-friendly by competent employees rather than confusing the user. As a result, the portal's design considerably aids the user's ability to swiftly comprehend and employ the gateway. Similar to how user-friendly internet portals affect SME success, the Availability of Trained and Skilled Staff (ATSE) is closely connected with how well SME performance is regarded.

Seventhly, it has been demonstrated that "TR, the investment in resources related to information and communication technologies," are positively related to how well SME performance is perceived. Even when the direct return from such expenditures is delayed, studies by Khayer *et al.* (2021) and Reyes-Mercado *et al.* (2020) too indicated a positive association between ICT adoption and the perceived performance of SMEs.

The perceived financial, operational, and market-based success of the organization is seen to be significantly influenced by factors associated with digitalization. Organizational performance is one of the variables most frequently used as a dependent variable in organizational research while having one of the most ambiguous definitions in the literature (Berberoglu *et al.*, 2018; Carmeli *et al.*, 2005). However, financial, operational, market-based, and total productivity are the measures of organizational performance that are most frequently used (Asghar, 2012; Penman *et al.*, 2010; Xie *et al.*, 2019).

The study's findings give decision-makers insight into the areas of digitalization so they may offer exceptional services and special incentives to SMEs in order to encourage digitalization in the rubber products manufacturing sector.

6. Conclusion, Implications, and Future Research

Small and Medium-sized Enterprises (SMEs) must be well-positioned to capitalize on opportunities in the digital economy. The present study contributes to the digitalization business value literature by establishing linkages between relevant factors of digitalization in the rubber products manufacturing industry of Kerala, India, and perceived organizational performance, using expert opinion and a detailed perception survey among 1154 industrial units. The study results show a positive and significant impact of the selected measures of digitalization on the perceived performance of SMEs. It is identified through this study that major digital technology measures such as the UWP, CIWP, MFWP, 'Use of Online Activities in Marketing Efforts (OAME)', 'Online Advertisements and Promotion (OAP)', 'Availability of Trained and Skilled Employees (ATSE)', and 'TR' have a significant and positive impact on the performance of SMEs.

Since the study has identified 'MFWP' as the most relevant factor of digitalization, necessary steps may be initiated to improve the functionalities of web portals, which will definitely contribute towards the improved performance of SMEs in the selected industrial sector. The study confirmed that digitalization is positively influencing organizational performance in terms of operations, marketing, and financial results. Accordingly, in order to obtain a competitive advantage within a selected industry, it is necessary for owners of SMEs to take account of those seven key factors.

The limitation of the study is that there is limited scope for the generalisation of the results to other industrial areas, as this study is an investigation of the adoption and diffusion of digital technology by measuring the impact of relevant factors on the perceived organizational performance of SMEs in the rubber

product manufacturing industry only. It provides insights for policymakers in the selected industrial sector as it contributes to the theory of digitalization among SMEs. Further studies may consider data from clusters of firms from other industrial sectors, as it would be interesting to investigate both the direct and indirect impacts of digitalization in a more comprehensive way. Adopting digital technology does not predict improved organizational performance by itself, but this does not mean that adopting digital technology is irrelevant.

7. References

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