



Research Article

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The Nexus between Top Management Support on Change Management, Cloud ERP Implementation, and Performance of SMEs

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Abstract

Top management support (TMS) is a critical success factor in cloud computing (CC) implementation and firm performance. However, extant empirical research on these relationships has obtained mixed findings due to earlier studies focusing on a one-dimensional TMS construct with diverse measurement items that muddle up different behaviours of top management. TMS is typically a multi-dimensional construct, such as TMS change management (TMSCM), TMS resource provision (TMSR), and TMS vision sharing (TMSV). The aim of this study is to examine a specific TMS dimension, TMSCM, on cloud ERP implementation and, further, to measure the effect of TMSCM on the financial performance of manufacturing small and medium-sized enterprises (SMEs) through the mediating effect of cloud ERP implementation. The proposed research model was validated using partial least squares structural equation modelling (PLS-SEM) with a sample of 204 Malaysian manufacturing SMEs. Results reveal that TMSCM significantly impacts cloud ERP implementation and financial performance. Moreover, cloud ERP implementation is a significant driver of financial performance, and it partially mediates the relationship between TMSCM and financial performance. Contributing to disentangling the mixed findings of TMS impact on cloud ERP implementation and firm performance, this study also generates insights for practitioners that they need to balance TMSCM and cloud ERP implementation to improve the financial performance of SMEs.

Keywords: Top Management support; Change; Cloud ERP; Implementation; Performance; SMEs; Malaysia

1. Introduction

Current research advocates that top management support (TMS) is a strong catalyst for overcoming barriers and improving organisational technical aptitude to effectively accept new technology (Hsu et al., 2019). As a result, a lack of TMS would result in implementation failure (Grandon & Pearson, 2004). In accordance with other IS research strands, enterprise resource planning (ERP) studies have generally highlighted TMS as the most crucial factor for ERP implementation success (Khaleel et al., 2011; Soliman & Karia, 2017). Faasen et al. (2013) show that ERP software makes it possible to integrate cross-functional business operations in order to increase operational efficiencies and business performance (Faasen et al., 2013). However, due to the significant cost and risk associated, small and medium-sized enterprises (SMEs) have been reported to be hesitant to implement ERP software (Buonanno et al., 2005; Mangiuc, 2011). Therefore, cloud ERP systems, ERP systems that are superior in terms of cost effectiveness, time and power usage, have become imperative (Mangiuc, 2011). Cloud ERP is implemented using cloud computing (CC), a technology that enables organisations to outsource their IT by offering internet-based access to computing resources (such as storage, servers, networks, and software) (Martson et al., 2011). Cloud ERP has various benefits, including more agility, faster execution, and reduced support and application costs, allowing firms to cope with volatile market conditions (AlBar & Hoque, 2019), particularly for SMEs with limited resources.

SMEs are the mainstay of economies all over the world, particularly in emerging countries like Malaysia. SMEs account for 98.5% of business entities in Malaysia (Economic Census, 2016; Fook Ming et al., 2018; Jayeola, et al., 2020), 65% of employment, roughly 18% of gross exports, and 36.3% of GDP (The World Bank, 2016). Therefore, SMEs are veritable entities for research on competitive IT, such as cloud ERP. In addition, most SMEs are managed by their owners or other top managers, who are major decision-makers in implementing new technologies. Hence, while deciding whether or not to use CC, top management support is important (Oliveira et al., 2014). The literature on the link between TMS and cloud ERP service implementation is substantial. However, the findings of these studies are inconclusive and conflicting (AL-Shboul, 2018; Alsadi, 2018; Gutierrez et al., 2015; Hassan, 2017).

Heterogeneous construct measures, most notably a single-dimension TMS with numerous items, have been identified as a primary source of inconsistency in findings (Dong et al., 2009). According to the exploratory study of Dong et al. (2009), TMS is a complex and multi-dimensional construct that consists of management support behaviours such as TMS-change management (TMSCM), TMS-vision sharing (TMSV), and TMS-resource allocation (TMSR). Therefore, a one-dimensional TMS construct that integrates a variety of TMS behaviours muddles the behaviours and fails to distinguish how each TMS behaviour will impact cloud ERP implementation differently. In light of this, studies have suggested that research should look into the impact of specific TMS dimensions on CC implementation to determine their distinct impact (Wang et al., 2019a). Although all the dimensions of TMS are important, the purpose of this research is to investigate the impact of TMSCM on cloud ERP implementation. This is because employee resistance to ERP systems is the most difficult barrier to implementation failure (Ashraf et al., 2014; Hasheela Miss et al., 2016; Kuo, 2011). If resistance is effectively addressed, cloud ERP implementation has a high likelihood of success, which will have a beneficial impact on firm performance.

Furthermore, previous research failed to incorporate performance into their models. That is, cloud ERP implementation is an intermediate organisational process; the end impact on business performance requires clarification. Additionally, little research has studied the direct relationship between TMS and performance, but the results have also been inconsistent (Lo et al., 2016; Ooi et al., 2018; Sheikh et al., 2017). Possible explanations include TMS's one-dimensional conceptualization and the omission of possible mediating factors by these studies.

Bearing in mind the above, the purpose of this paper is to holistically examine the impact of TMSCM on cloud ERP implementation and how this in turn leads to better financial performance, further analysing the mediation of cloud ERP implementation. In this context, this study offers an

original perspective by acknowledging the multi-dimensionality of TMS, such as TMSCM, TMSV, and TMSR, and providing a deeper insight into one of its dimensions, TMSCM. As a result, this study provides a deeper understanding of a distinct TMS behaviour in terms of change management in cloud ERP implementation and contributes to untangling inconsistent findings in TMS, CC implementation, and performance research.

The remainder of the article is structured as follows: theoretical background, literature review, and hypotheses development are presented in the next section. Section 3 depicts methods, followed by data analysis and results in Section 4. Section 5 discusses the findings, theoretical and practical implications, highlighting limitations and areas for future research. Section 6 presents the conclusion.

2. Theoretical Background, Literature Review and Hypotheses Development

2.1 Theoretical background

Organisations obtain a competitive edge and superior performance when they have valuable, rare, inimitable, and non-substitutable (VRIN) resources and capabilities, according to Barney's (1991) RBV theory. According to RBV theory, by combining resources and capabilities, a firm can achieve a competitive advantage and surpass its competitors (Gupta et al., 2018a). Grant (1991) asserts that there is a distinction between resources and capabilities. Grant describes resources as "collections of conveniently accessible and controllable factors." Capabilities, on the other hand, refer to a company's ability to utilise business processes and various resources to fulfil its objectives.

According to Utzig et al. (2013), organisations can create distinct and non-replicable business strategies by maximising the usage of cloud ERP. As a result, TMSCM is a capability that enterprises can leverage to successfully integrate cloud ERP as an IT resource. Furthermore, cloud ERP implementation has been conceptualised in this study as "usage" and "strategic alignment" because IT adoption has been criticised as a mere commodity acquisition without effective usage or alignment with organisational strategy (Fuzes, 2018; Ilmudeen et al., 2019). According to Barney (1991), the VRIN resources and capabilities that will offer organisations a competitive advantage and improved financial performance include cloud ERP, usage, and strategic alignment of cloud ERP and TMSCM bundled together. Furthermore, because TMSCM is a new construct created from the exploratory research of Dong et al. (2009), no measurement items are specified. As a result, the eight steps of Kotter's (1996) change model were determined to be appropriate for measuring TMSCM. The eight steps are: "create a sense of urgency"; "establish a facilitating task force"; "initiate strategic vision and actions"; "communicate and drive everybody towards the vision"; "remove obstacles and commit to solving all arising problems"; "create and recognise short-term success leading to long-term victory"; "strive for more victories after achieving a victory"; "anchor the changes in corporate culture". Despite the fact that Kotter's change model stresses leadership in change management, it does not specify the leadership levels—top management, middle management, or operational management. As a result, the eight steps have been tailored to only the top management level in this study, which is also inclusive of SME owners.

2.2 Literature review and hypotheses development

2.2.1 Top management support on change management and cloud ERP implementation

For organisations interested in building a competitive advantage while also providing the necessary technological and infrastructural resources to embrace CC, top management support is important (Gutierrez et al., 2015). TMS has been identified as a critical factor in Malaysian SMEs' successful adoption of cloud ERP (Abdollahzadehgan et al., 2013; Qian et al., 2016); as the primary determinant of SaaS adoption in South Korean SMEs (Kim et al., 2017); and as the most influential factor

influencing cloud ERP adoption in US firms (Kinuthia, 2015). On the other hand, TMS, was found to have no effect on CC adoption in either UK firms (Gutierrez et al., 2015) or Malaysian SMEs (Hassan, 2017; Hassan et al., 2017).

These studies, however, are inconclusive because they conceptualised and measured TMS as a one-dimensional construct. For example, Gutierrez et al. (2015) developed four statements to measure one-dimensional TMS: "Management awareness of cloud benefits"; "Management support to adopt cloud computing services"; "Management employees' encouragement to use cloud computing services"; and "Management adequate resources to adopt cloud computing services". On the other hand, Qian et al. (2016) used five statements to measure the one-dimensional TMS construct: "Top management deems cloud ERP essential in the operations of the company"; "The decision of top management is vital for the company to adopt cloud ERP"; "Top management plans to adopt cloud ERP"; "Top management will support cloud ERP adoption"; and "Top management support is important to provide the resources for the company to adopt cloud ERP." TMS has been defined as a multidimensional construct with dimensions including TMSV, TMSCM, and TMSR. TMSR is concerned with actions aimed at providing critical resources such as money, technologies, workforce, and user training programmes; TMSCM is concerned with actions aimed at increasing the organisational reception of new IT; and TMSV is concerned with actions designed to ensure that lower-level managers develop a shared understanding of the new system's core objectives and ideals. Many of the statements associated with TMS measurement items in previous studies are "intentions," not actions. Several of the action-oriented statements can be used to measure solely TMSR and cannot be used to measure TMSCM or TMSV. However, this study focuses on TMSCM. TMSCM defines the measures taken by top management to guarantee that people, teams, and businesses successfully adopt a new IT system (Dong et al., 2009).

Dong et al. (2009) demonstrate TMSCM as a critical factor in the success of enterprise resource system implementations at Canadian universities. To properly integrate cloud services, organisations may require some business process reengineering (Vidhyalakshmi & Kumar, 2016). Given that implementing CC may require an organisation to transform its existing processes, operations, systems, and structures, decision makers must be prepared to meet the challenges associated with successfully managing the changes (Khayer, et al., 2020). Despite the ease with which cloud ERP may be introduced, organisational members will require significant time to adjust to the changes that cloud ERP will undoubtedly bring (SØrheller et al., 2018). Thus, based on the theoretical and empirical explanations presented above, the following hypothesis is proposed:

H1: Top management support on change management (TMSCM) positively influences cloud ERP implementation.

2.2.2 *Top management support on change management and financial performance*

Scholars have evaluated performance from both financial and non-financial perspectives. For the purpose of this study, financial performance (FP) measures were used to assess firm performance because they remain one of the most extensively used criteria for assessing performance in business enterprises (Gupta et al., 2018a; Mardsen, 1996) and because IT performance is typically measured from a financial perspective (Ooi et al., 2018). Furthermore, FP is the ultimate goal of top management in successfully managing technological changes.

Powell (1995) argued that top management commitment is critical because it has a substantial impact on the organisation's overall strategic orientation, including establishing a competitive advantage and enhancing performance. Sexton and Upton (1987) justified the strategic choice viewpoint by arguing that a firm's performance is not a natural phenomenon but rather the product of top management's choices and interpersonal relationships. The empirical literature indicates how vital it is to demonstrate top management support for organisational success (Lo et al., 2016). Similarly, Fernandes et al. (2014) discovered that top management's attitude toward and support for innovation can assist organisations enhance their performance.

Lo et al. (2016) concluded that top management considerably enhanced financial performance among the critical success factors in Malaysian SMEs. Similarly, Sheikh et al. (2017) evaluated the relationship between top management support and performance in Pakistani textile enterprises and discovered a strong and positive correlation. Therefore, the following hypothesis is proposed:

H2: Top management support on change management (TMSCM) positively influences financial performance.

2.2.3 Mediation of cloud ERP implementation

As per the 2014 report "Best Practices in Change Management" by Prosci, a global change management research organization, an IT project is 600% more likely to succeed when excellent change management is implemented by organisational leaders (Wipfli LLP, 2014), resulting in improved firm performance. The ERP implementation is expected to result in improved operational performance that will lead to financial gains (Acar et al., 2017), which is the primary focus of top management. Businesses shift to cloud ERP for financial reasons, since it enables them to save money on IT staff, maintenance, hardware, and software infrastructure (Chang, 2020). Switching to cloud ERP is possible with the foresight and involvement of top management in all facets of the implementation, but particularly in the area of change management.

Past research has investigated the direct impact of TMS on both the financial and non-financial performance of firms. However, inconsistent results have been reported. For instance, the impact of TMS on performance was found to be significant (Lo et al., 2016; Sheikh et al., 2017) and insignificant (Ooi et al., 2018). The mixed findings of the relationship between TMS and performance could be due to some intermediate factors transmitting the effect to the performance since management provides resources, motivates people, and coordinates some logistical factors that are the quintessence of intermediary factors. Nevertheless, the indirect relationship remains an uncharted area. Also, indiscriminate conceptualisation of the TMS as a single-dimensional construct accounts in part for the inconclusiveness of the findings. Hence, examining a single TMS dimension, TMSCM, coupled with the mediating effect of cloud ERP implementation between TMSCM and financial performance, will contribute to disentangling the inconclusive findings saga in the TMS and performance literature. Therefore, the following hypothesis is proposed:

H3: Cloud ERP implementation mediates the relationship between TMSCM and financial performance.

2.2.4 Cloud ERP implementation and financial performance

In general, IT deployment allows organisations to improve their performance by gaining market share, increasing productivity, establishing a stable customer-oriented position, improving product and service innovation, and adapting more swiftly to changing market conditions (Cardona et al., 2013; Tran et al., 2014). As a result, technology adoption is critical only when it dramatically improves company performance (Yunis et al., 2018). Gangwar (2017) discovered a positive relationship between CC usage and organisational performance in India. Munene (2017) investigated the link between CC adoption and firm performance in Kenyan SMEs. According to the findings, CC adoption had a significant positive impact on all performance parameters. Schniederjans and Hales (2016) revealed that CC had a positive impact on the economic performance of firms in the United States.

Cloud ERP could be the most important driver of companies' performance (Gupta et al., 2020). Gupta et al. (2018b) investigated the impact of big data, predictive analytics, and cloud ERP on company performance (operational and market). According to the study's findings, both cloud ERP and big data had a significant positive impact on operational and market performance. Though the cost of technology adoption and implementation can be significant at first (Lin & Chen, 2012), the long-term contribution to organisational and economic development makes the investment worthwhile (Gupta et al., 2020). According to Al-Sharafi et al. (2019), the adoption of cloud-based

business services is crucial in boosting the business performance of Malaysian SMEs. Shee et al. (2018) observed that cloud-enabled supply chain integration was positively connected to supply chain performance, which in turn influenced business sustainability in the context of Australian retail firms. Cloud ERP adoption has also been linked to the long-term success of technologically proficient multinational corporations in India (Gupta et al., 2020). Cloud ERP software allows for the integration of cross-functional company processes in order to improve operational efficiency and performance. When effectively implemented, cloud ERP software can greatly improve competitive advantage and bottom-line results (Faasen et al., 2013). The following hypothesis is thus proposed:

H4: Cloud ERP implementation positively influences financial performance.

Figure 1 depicts the conceptual model of the constructs' relationship.

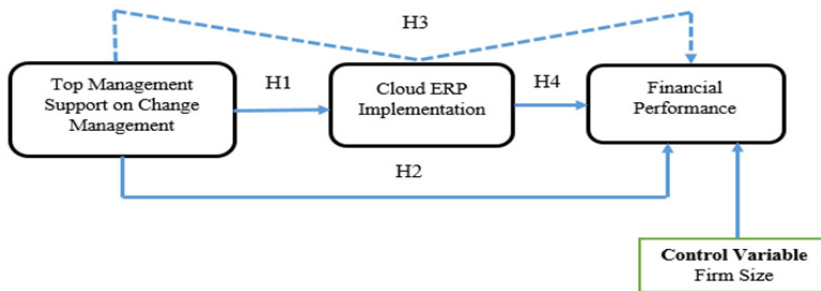


Figure 1: Conceptual model

3. Methods

Manufacturing SMEs in two Malaysian states (Selangor and Johor) and one federating territory (Kuala Lumpur), with the largest populations of SMEs, were included in the sample (Department of Statistics Malaysia, 2016). The SME Corp. and Federation of Malaysian Manufacturers (FMM) directories were used to compile the profiles of registered SMEs. An online survey was taken between November 2020 and January 2021, utilising Google Forms as a questionnaire tool. The study questionnaire was pre-tested by four respondents and one information systems researcher before data collection to ensure its usability and comprehensiveness. To improve the clarity of the questionnaire, several of the items were corrected based on the observations of the pre-testers. The pilot test was then done using a sample of 30 firms that were excluded from the main study. The findings demonstrated the instrument's validity and reliability.

Top-level managers and small business owners were chosen as the units of study because they are responsible for strategic planning and decision-making (Tajeddini & Mueller, 2012). Utilizing stratified random sampling, 208 completed surveys were recovered from a total of 1020 issued to SMEs' email addresses, reflecting a 20% response rate. Four responses, however, were eliminated since they were filled by large enterprises. Due to the online forced-answer approach, in which all questions must be answered, 204 responses were analysed, and no data was missing. A Likert scale of 1-5, with 1 representing strongly disagree, 2 disagree, 3 neutral, 4 agree, and 5 strongly agree, was used. There are a number of potential causes of common method biases (CMB) in research that uses self-reported data (Podsakoff et al., 2003). CMB is generally difficult to manipulate, and researchers are expected to exert maximal control over it (Podsakoff et al., 2003). Harman's one-factor technique was used in this study to account for the likelihood of CMV.

A factor analysis was performed on all construct items based on a principal component analysis. According to the findings, the first component accounted for 44.8% of the total variation. As a

consequence, no single general factor sufficiently explained the majority of the covariance (> 50%) between the measures, indicating that CMV is not an issue in this data set. According to the descriptive analysis, 48.5% of the 204 respondents were owners, while 69.6% were between the ages of 21 and 50. The majority of respondents (39.7%) had a bachelor's degree, were female (54.4%), and generally worked in the small business category (49.0%). The majority (17.6%) work in food, beverage, and tobacco companies, and the majority (76%) have used cloud ERP for less than three years, with a large number (80.4%) subscribing to public cloud ERP. Two predictor variables (top management support on change management and cloud ERP implementation) and one endogenous variable (financial performance) are included in this study. The variable measurements were adapted from earlier research to fit the context of this research. The study uses firm size as a control variable since different sizes of SMEs have different amounts of resources, which might affect their performance.

4. Data Analysis and Results

Because of the (1) non-normality of the data distribution, (2) small sample size of 204, and (3) goal of maximising the variance explained by the dependent construct in the model, this study used the Partial least squares-structural equation modelling (PLS-SEM) technique with the statistical software Smart PLS 3.3.2 to analyse the data (Hair et al., 2011, 2014).

4.1 Measurement

As TMSCM is a construct that originated from an exploratory study (Dong et al., 2009), the 8 steps of Kotter's change model were adapted as measurement items. Five items were adapted from Wang et al. (2008) to measure financial performance. Two dimensions, "usage" and "strategic alignment," were used to measure cloud ERP implementation. Usage was adapted from Gangwar (2017) with three items. Strategic alignment was adapted from Chiu and Yang (2019) and Jorfi et al. (2017) with nine items.

4.2 Measurement model

A measurement model was developed using confirmatory factor analysis (CFA) to examine the constructs' reliability, indicator reliability, convergent validity, and discriminant validity. The study's constructs include lower-order constructs (LOCs) (TMSCM and FP) and higher-order construct (HOC) (cloud ERP implementation), which include LOCs "usage" and "strategic alignment." In line with the literature review, the LOCs were reflectively modelled. Similarly, the HOC was modelled as reflective-reflective (Sarstedt et al., 2019) based on the literature review and the conceptual reasoning that the HOC is the outcome of the LOCs (Sarstedt et al., 2019). Furthermore, the disjoint two-stage technique was employed to specify and assess the HOC. In the disjoint two-stage approach, antecedent paths were created straight to the LOCs of the HOC without including the HOC in stage 1, while the latent variable scores of the LOCs were saved and utilised to measure the HOC in stage 2.

Table 1 depicts the first-order measurement model. The composite reliability (CR) scores of the constructs ranged from 0.914 to 0.971, all of which are above the 0.7 threshold proposed by Hair et al. (2014). These findings ensured the internal consistency of the constructs. The loadings of the constructs' indicators were more than the 0.7 criterion, confirming the constructs' reliability (Hair et al., 2010). Furthermore, the average variance extracted (AVE) scores used to quantify the common variation in a specific construct ranged from 0.748 to 0.810, indicating values greater than the 0.5 threshold established by Fornell and Larcker (1981). As a result, the constructs' convergent validity is confirmed. The Heterotrait-Monotrait Ratio (HTMT) was used to examine discriminant validity because it is innovative, rigorous, and achieves a better level of specificity than the Fornell-Larcker (1981) criterion and cross-loadings (Henseler et al., 2015).

The HTMT scores in Table 2 were less than 0.85 (Kline, 2011), indicating that there is no

problem with discriminant validity. In Table 3, the measurement model of the HOC (cloud ERP implementation) was carried out next. The CR for cloud ERP implementation (0.923) demonstrates the construct's internal consistency. The factor loadings for usage and strategic alignment (LOCs) of cloud ERP implementation show values greater than the 0.7 threshold (Hair et al., 2010), indicating the LOCs' reliability. Convergent validity is confirmed by an AVE of 0.858 for cloud ERP implementation. Finally, the discriminant validity of all constructs was examined as indicated by Sarstedt et al. (2019), and the HTMT values were lower than the 0.85 of Kline's (2011) benchmark (see Table 4). The findings indicate the reliability and validity of the constructs that can be used to evaluate structural models.

Table 1: First-order measurement model: Factor loadings, AVE, CR

Construct	Indicator	Loadings	AVE	CR
Top Management Support on Change	TMSCM1	0.850	0.808	0.971
	TMSCM2	0.885		
	TMSCM3	0.919		
	TMSCM4	0.898		
	TMSCM5	0.919		
	TMSCM6	0.934		
	TMSCM7	0.934		
	TMSCM8	0.847		
Cloud ERP Usage	ERP_usage1	0.916	0.780	0.914
	ERP_usage2	0.891		
	ERP_usage3	0.841		
Strategic Alignment of Cloud ERP	ERP_str_align1	0.868	0.748	0.964
	ERP_str_align2	0.838		
	ERP_str_align3	0.830		
	ERP_str_align4	0.876		
	ERP_str_align5	0.879		
	ERP_str_align6	0.899		
	ERP_str_align7	0.868		
	ERP_str_align8	0.854		
	ERP_str_align9	0.870		
Financial Performance	FIN_PERF1	0.913	0.810	0.955
	FIN_PERF2	0.858		
	FIN_PERF3	0.897		
	FIN_PERF4	0.925		
	FIN_PERF5	0.907		

Table 2: First-order constructs: Heterotrait-Monotrait Ratio (HTMT)

	ERPUSAGE	FP	STR_ALIGN	TMSCM
Cloud ERP usage				
Financial performance	0.401			
Strategic alignment of cloud ERP	0.793	0.478		
Top management support on change	0.523	0.480	0.619	

Table 3: Second- order Measurement Model: Factor Loadings, AVE and CR

Construct	Indicator	Loadings	AVE	CR
Cloud ERP Implementation	ERP_USAGE	0.909	0.858	0.923
	STR_ALIGN	0.943		

Table 4: All constructs: Heterotrait-Monotrait Ratio (HTMT)

	CERPIMPL	FP	TMSCM
Cloud ERP implementation			
Financial performance	0.496		
Top management support on change	0.644	0.480	

4.3 Structural model and testing of hypotheses

Prior to testing the structural model, the constructs' multicollinearity was assessed using the variance inflation factor (VIF). The VIF values varied from 1.000 to 1.526. The values were less than the 3.3 criterion, indicating that the constructs were free from multicollinearity issues (Hair et al., 2014). The path coefficient, coefficient of determination R^2 , effect size f^2 , and Q^2 are typical metrics for evaluating structural models (Hair et al., 2014), and more recently, the model's out-of-sample predictive power, PLSpredict, has been proposed (Hair et al., 2019).

4.3.1 Path coefficient assessment

The path coefficients were used to assess the significance of the proposed direct and indirect relations between the constructs. In SMARTPLS, a comprehensive bootstrapping technique with 5000 subsamples was performed, and t-statistics were computed to analyse the significance of all path coefficients. According to Hair et al. (2014), t-statistics of 1.96 suggests a 0.05 level of significance. As displayed in Table 5, Top management support on change ($\beta = 0.587$, $t = 10.330$, $p < 0.001$) had a positive effect on cloud ERP implementation, thus supporting H₁. Top management support on change management ($\beta = 0.304$, $t = 3.703$, $p < 0.001$) positively influenced financial performance, thus, H₂ is supported. Cloud ERP implementation ($\beta = 0.269$, $t = 3.158$, $p < 0.01$) positively influenced financial performance, hence H₄ is supported. For the control variable, firm size had no effect on financial performance. That is, either a firm was micro, small or medium-sized, there was no differential impact on their financial outcome.

To evaluate the mediating effect, besides the path coefficient being significant, the result of the bootstrap test of the bias corrected confidence interval must not include zero value in between (Hair et al., 2014). According to Table 6, the path coefficients for TMSCM → CERPIMPL → FP were significant ($\beta = 0.158$, t-value = 3.074, $p < 0.01$). Additionally, the bootstrap test's bias-corrected confidence interval values (lower level [LL] = 0.057, upper level [UP] = 0.263) excluded a zero value in the interval, supporting the presence of a mediating effect and H₃. To ascertain the type of mediation, it is necessary to consider the significance of the direct effect (Cepada-Carrión et al., 2018; Yusof et al., 2021). In the meantime, the direct effect ($\beta = 0.304$, t-value = 3.703, $p < 0.001$) was significant. Thus, cloud ERP implementation partially mediated the relationship between top management support on change management and financial performance.

Table 5: Hypothesis Testing

No	Hypothesis	β	SD	t-value	Result
H ₁	TMSCM → CERPIMPL	0.587***	0.057	10.330	Supported
H ₂	TMSCM → FP	0.304***	0.082	3.703	Supported
H ₄	CERPIMPL → FP	0.269**	0.085	3.158	Supported
Control variable	FS → FP	0.108 ^{ns}	0.062	1.479	No effect

Note: ^{ns} = non-significant, *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, β = Standard Beta, SD = Standard Deviation

Table 6: Mediation results

95% Confidence Interval (Bias Corrected)

No	Hypothesis	β	SD	t-value	LL UL	Result
H3	TMSCM → CERPIMPL → FP (indirect effect)	0.158**	0.052	3.047	0.057 0.263	Supported
	Direct effect	0.304***	0.082	3.703		
	Total effect	0.462***	0.077	6.029		Partial Mediation

Note: ^{ns} = non-significant, ***p < 0.001, **p < 0.01, *p < 0.05, β = Standard Beta, SD =

4.3.2 Assessment of R^2 , f^2 , Q^2

The determination coefficient (R^2) quantifies how much of an endogenous variable's variance may be explained by its exogenous variables (Hair et al., 2014). The effect size f^2 allows one to calculate how much an exogenous construct contributes to the R^2 value of an endogenous latent variable. The blindfolding approach is used in predictive relevance (Q^2) to determine the predictive power of exogenous constructs over endogenous constructs (Geisser, 1974; Stone, 1974). The R^2 value of cloud ERP implementation was 0.345, whereas that of financial performance was 0.261, as shown in Table 7. According to the findings, top management support for change management accounted for 35% of the variance in cloud ERP implementation. Furthermore, top management support for change management and cloud ERP implementation accounted for 26% of the variance in financial performance. Cohen (1988) argues that R^2 values of 0.26, 0.13, and 0.02 indicate strong, moderate, and weak explanatory power, respectively.

As a result, cloud ERP implementation and financial performance exhibited strong explanatory power. The f^2 for the TMSCM → cloud ERP implementation relationship was 0.526, the f^2 for the TMSCM → FP relationship was 0.082, and the f^2 for the cloud ERP implementation → FP relationship was 0.064, as shown in Table 7. Cohen (1988) recommends that f^2 values of 0.35, 0.15, 0.02, < 0.02 indicate large, medium, small, and trivial effect sizes. As a result, TMSCM had a large impact on cloud ERP implementation. TMSCM and cloud ERP implementation had a small effect on financial performance. According to Hair et al. (2014), when a Q^2 value is greater than zero, it suggests that the endogenous constructs have predictive relevance in the model. The statistical analysis found that the Q^2 values for endogenous constructs were greater than zero (0.280; 0.197) for cloud ERP implementation and financial performance, as shown in Table 7, meaning that the model in this study had sufficient predictive relevance. To complete the structural model evaluation, this study examined the model's out-of-sample prediction power on 10 folds and 10 replications of the hold-out sample data using the PLSpredict technique (Hair et al., 2019).

This allows for a comparison of the root mean squared error (RMSE) results for the PLS-SEM and the naive linear benchmark linear model (LM) in the PLSpredict output. Because all PLS-SEM RMSE values were less than that of the LM RMSE, resulting in all negative differences in the last column of Table 8, this suggests high predictive power (Shmueli et al., 2019). Hence, the cloud ERP implementation and financial performance constructs' robust out-of-model predictive power is confirmed.

Table 7: R^2 , f^2 and Q^2 Values

Relationship	R^2	f^2	Q^2
TMSCM → CERPIMPL	0.345	0.526	0.280
TMSCM → FP	0.261	0.082	0.197
CERPIMPL → FP	-	0.064	-

Table 8: Prediction-Oriented Analysis (PLSpredict)

		PLS-SEM		LM	PLS-SEM - LM
Item	RMSE		Q ² predict	RMSE	RMSE
Fin_perf1	0.775		0.023	0.782	-0.007
Fin_perf2	0.782		0.049	0.791	-0.009
Fin_perf3	0.756		0.031	0.761	-0.005
Fin_perf4	0.723		0.051	0.733	-0.010
Fin_perf5	0.755		0.004	0.764	-0.009

5. Discussion

5.1 Discussion of findings

This study investigated the holistic relationships between TMSCM, cloud ERP implementation, and financial performance from the manufacturing SMEs' perspective in Malaysia. To date, research on information systems, specifically, CC, has mostly focused on the one-dimensional construct of TMS as an influencing factor for adoption. This approach has been attributed to the inconsistent findings (Dong et al., 2009) on cloud implementation and performance. Furthermore, studies neglected to extend their research models to include performance or examine mediators. Based on the empirical analysis of this study, TMSCM (H1) has been found to be an influential factor for cloud ERP implementation. This finding is consistent with a similar study (Dong et al., 2009). As a result, TMSCM capabilities such as building a feeling of urgency, developing a facilitating task force, launching strategic vision and activities, and communicating and driving everyone towards cloud ERP implementation have a substantial impact on the technology's successful deployment.

Cloud ERP is a technology that reduces IT staff functions and streamlines business data for transparency, and might result in a slew of changes in an organisation. Changes of this nature may be greeted with resistance inside the organisation (Kinuthia, 2015). However, such opposition can be overcome if top management views technology positively and manages change efficiently. The TMSCM (H2) effect on FP is found to be positively significant. Although the relationship between TMSCM and financial performance has not been explicitly examined in the extant literature, the finding of this study is in line with similar studies on top management support and performance (Fernandes et al., 2014; Lo et al., 2016; Sheikh et al., 2017). This finding indicates that top management measures for managing the change caused by cloud ERP implementation, such as removing obstacles, creating and recognising short-term success leading to long time victory (Kotter, 1996), are important. Hence, the resistance is well managed and employees adapt easily to cloud ERP that facilitates cross-departmental coordination, supply chain collaboration, and faster customer responses that subsequently reduce operational costs and boost revenue and profit. The mediation of cloud ERP implementation between TMSCM and financial performance has been supported (H3) in this study. This finding is consistent with prior research which found the mediation effect of IT implementation on influencing factors and firm performance (Gillani et al., 2020; Nawi et al., 2017). The partial mediation of cloud ERP implementation suggests that a firm's technological proficiency and the adoption of new technologies such as cloud ERP complement the changes made by SME's top management and owners and have a beneficial effect on the firm's financial performance. Although, based on the path coefficients, the direct effect of TMSCM on financial performance is stronger than the indirect effect. This indicates that maximum revenue and profits cannot be realised through only TMSCM but in synergy with successful cloud ERP implementation.

Finally, the influence of cloud ERP implementation on financial performance was explored in this study. This study found that cloud ERP implementation influenced the financial performance of SMEs, similar to prior research by Garrison et al. (2015), Gangwar (2017), Sallehudin (2017), and Khayer et al. (2020). Given that the fundamental purpose of cloud ERP deployment is to reduce

overhead costs and increase performance, the effect is predictable (Garrison et al., 2015). This research suggests that SMEs that effectively leverage cloud ERP and connect it with their business strategy improve cross-departmental collaboration on business processes to increase flexibility (Wang et al., 2020), leading to enhanced information, materials, and product flow in the supply chain (Morell & Ezingear, 2002). As a result, higher revenue, market share, profitability, and return on investment are realised.

5.2 Theoretical Implication

As previously stated, the majority of the research on the topic of TMS in CC implementation has been focused on the investigation of a one-dimensional construct of TMS, which usually integrates heterogeneous items related to different TMS behaviours. This approach has been blamed for inconclusive and conflicting findings in terms of cloud ERP adoption and performance. This study has responded to the call of Wang et al. (2019a) to investigate the distinct dimension of the TMS construct in CC studies. In addition, this study contributed to untangling the conflicting findings in the research domain. Therefore, this study has made a significant contribution to the literature by investigating the impact of a specific TMS construct dimension (TMSCM) out of the three dimensions (TMSCM, TMSR, and TMSV) identified in the exploratory study of Dong et al. (2009) on cloud ERP implementation, as well as extending the research model with financial performance and testing the mediation of cloud ERP implementation. Additionally, this study contributes to future theorization of TMS in CC implementation studies by emphasising the importance of distinct empirical assessments of its multidimensionality for a clear understanding of the behavioural roles in each context, which is critical for practitioners and academia.

As a result, proof has been shown that TMSCM is a significant factor in the success of cloud ERP implementation and financial performance. Furthermore, cloud ERP implementation functions as a predictor of improved financial performance as well as an intermediary mechanism between TMSCM and financial performance. This research, which is based on the RBV theory (Barney, 1991), improves understanding of how the bundling of resources and capabilities such as TMSCM, cloud ERP, cloud ERP usage, and the strategic alignment of cloud ERP with the strategic objectives of firms work in synergy to lead to better financial performance. Furthermore, the Kotter's change model was applied in this study to reinforce the RBV by using the eight change steps as scale items adapted to measure TMSCM capability. According to the authors' knowledge, such theoretical integration and extension to better undergird the phenomenon is sparse in the CC research domain. Lastly, to our knowledge, this is the first study to empirically evaluate the relationship between TMSCM, cloud ERP implementation, and FP while also exemplifying the mediating influence of cloud ERP implementation and the model's predictive power, especially from the manufacturing SMEs' perspective in a developing country.

5.3 Practical implication

From a managerial standpoint, this study has numerous important consequences. Our findings indicate that TMSCM is an important factor in the success of cloud ERP implementations. As a result, according to Kotter (1996), SME owners and top management should take change management seriously by following the systematic eight stages outlined in this study. Employee resistance can be minimised to a bare minimum as a result, and cloud ERP can be successfully implemented. Additionally, the cloud ERP service provider should simplify the software's functionality and features in order to facilitate learning and reduce employee resistance. Better user-friendly functions and an easy interface of the ERP systems with the technological facilities of manufacturing SMEs would help the employees and managers learn how to effectively use the technology, thereby reducing resistance. Furthermore, TMSCM has a favourable impact on financial performance, prompting top management to consider using Kotter's steps, which are capable of improving financial performance through

organizational-wide process reengineering. Furthermore, cloud ERP implementation mediates the relationship between TMSCM and financial performance. SMEs should be aware that, while TMSCM can contribute to financial success directly, part of the effect is transmitted through cloud ERP implementation. This suggests that cloud ERP implementation should be balanced with TMSCM to improve the financial performance of SMEs. Finally, cloud ERP implementation has been shown to improve financial performance. According to the study's conceptualization of cloud ERP implementation, SMEs can achieve higher financial performance when they use cloud ERP intensively in conjunction with other resources and strategically align it with their goals. In addition, manufacturing SMEs can improve their financial performance by being more agile through the use of cloud ERP as a production planning and control tool as well as an integrative tool to enable the smooth coordination of all supply chain operations. Since cloud ERP is a competitive IT solution, SMEs can reap the benefits of competitiveness, which will boost their financial results.

5.4 Limitations and future research

This study has some limitations that necessitate further investigation and research. According to the exploratory study of Dong et al. (2009), the TMS dimensions are three: TMSCM, TMSR, and TMSV. Nonetheless, this study examined only TMSCM. All three TMS dimensions are crucial because different support behaviours have varying effects on implementation outcomes, necessitating that top managers change their support actions in order to obtain the desired results (Dong et al., 2009). Thus, future research should study the distinct ways in which these three factors affect cloud ERP implementation and financial performance. Additionally, because the dimensions lack scales of measurement, future research may develop appropriate scales. The dataset for this study was cross-sectional, which means it was compiled at a specific time point. Cloud computing is still in its infancy, and the data was gathered during the COVID-19 pandemic, during which over 70% of additional SMEs worldwide adopted digital technologies (OECD, 2021). As the cloud matures and more SMEs adopt cloud ERP, a longitudinal study of this research context may uncover emerging and changing issues.

The data for this study was gathered exclusively from the owners' and top managers' perspectives. While these respondents are in a stronger position to provide strategic insight into cloud ERP implementation and performance, their opinions may be skewed due to their proclivity for overrating their responses. Future research should include employees as respondents to improve the data even more. Additionally, future research can use the conceptual model developed in this study to evaluate the impact of TMSCM on other digital technologies such as big data analytics, e-commerce, cloud supply chain management, and block chain technology, as well as take into account the firm performance in different countries.

6. Conclusion

The purpose of this study was to determine the effect of TMSCM on cloud ERP implementation and the financial performance of SMEs while also considering cloud ERP implementation mediation. From an academic standpoint, this research has contributed to disentangling the mixed findings of TMS in cloud ERP implementation and performance literature, and paved the way for future empirical investigation of TMS dimensions in CC research. TMSCM is critical in assisting businesses in successfully implementing cloud ERP while also enhancing their financial performance. When combined with other business resources and linked with corporate goals, cloud ERP systems significantly improve firms' financial indices such as profit, revenue, and return on investment. The study reinforces the importance of cloud ERP implementation as an intermediate mechanism for SMEs to achieve better financial results. Therefore, SMEs should use the findings of this study to increase their chances of a successful cloud ERP implementation as well as their performance.

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