TEST Engineering & Management

January - February 2020
ISSN: 0193 - 4120 Page No. 560 - 565

The Barriers of Digitalization in Malaysia: Perceptions from Small and Medium sized Enterprises

Lakshmi Chaitanya Datti
Centre of Entrepreneurship & Innovation
Asia Pacific University, 51000 Kuala Lumpur
Malaysia
TP052424@mail.apu.edu.my;

Mudiarasan Kuppusamy
University of Cyberjaya, 63000 Cyberjaya, Selangor
drarassan@cybermed.edu.my;

Haslina Hashim
Centre of Entrepreneurship& Innovation
Asia Pacific University, 51000 Kuala Lumpur Malaysia
haslina.hashim@staffemail.apu.edu.my

Article Info
Volume 82
Page Number: 560 - 565
Publication Issue:
January-February 2020

Article History
Article Received: *14 March 2019*
Revised: *27 May 2019*
Accepted: *16 October 2019*
Publication: *04 January 2020*

Abstract
Digital technologies are changing the face of the business. Organizations has to adopt technologies such as social media, mobile technology, cloud technologies, internet of things. It is important to adopt these technologies and with this SMEs can adopt after the transformation they are many opportunities. This study shows the barriers of digital transformation in Malaysian SMEs. Based on the Literature review which is available, a framework is developed, this paper uses quantitative analyses with 487 respondents were surveyed using questionnaires for the employees in Malaysia. Then the data was analysed by using SPSS (Statistical Package for Social Science) and also modelling technique Multiple Linear Regression, and reliability analysis. The results showed that the technology, psychological, Process are the Barriers that are effecting Digital Transformation in Malaysian SMEs.

Keywords*: Digital Transformation, Barriers of digital transformation, SMEs, Malaysia.*

I. INTRODUCTION

Digital Transformation tends to be the ongoing Transformation of Business and Organizational Processes, Practices, Competencies, and Principles to fully exploit the modifications and possibilities of a variety of digital technologies and their growing impact through society in an innovative and prioritized manner, taking into account existing and future innovations. Lee (2018) indicated that the use of Digital Technology makes the company responsive to local SMEs. Over half of the 2,033 companies surveyed are investing in Technology to expand into new markets, reach new clients, and increase profits. It is also noted that 50% of SMEs had the mentality of an ICT leadership to use ICT to expand the business and create a competitive advantage. About 30% of ICT advocates invest in much more. An MIT Sloan Management Review Research Report (2013) found that 78% of employees and executives across different organizations assumed that the introduction of digital transformation would be necessary to their organizations. J.Berman (2012) claimed that it was essential to create new business models, improve operating processes, and improve customer experience. While there are many advantages of digital transformation in SMEs, there are some barriers that stop Malaysians SMEs from embracing the digital transformation.

This study mainly focuses on the barriers that are effecting digital transformation such as; Technological, Financial, Organizational, Psychological, Process. By collecting the data from the employees in Malaysian SMEs.

A. Digital Transformation in Malaysia

Digital transformation in Malaysia is not just a buzzword for several business strategies. Therefore, Digital transformation is usually a way to shift an

January - February 2020
ISSN: 0193 - 4120 Page No. 560 - 565

organization form a conventional model to a digital system, and there are various things to get into in all this. So, let us test how it works for marketing as well as for ads. Compared to the physical world today of private conversations, hoardings, emails, flyers, and so on, Digital Transformation can bring more revenues and advertisements to the organization says Genus, (2007). Digital transformation in Malaysia needs to gain more interest, as Asia is increasingly becoming a global digital development field. Approximately 50% of online users estimated at around 3 billion in this region and Asia has been become one of the largest national e-commerce markets. By 2025-2030, technologies like mobile internet, cloud technology, 3D printing, and the Internet of Things will constitute at least 30% of Asia's financial growth. While business operations in Asia are growing, it is not shocking that the region is becoming a major hub for many companies. In Malaysia, digital transformation could take more businesses, as well as country growth. Malaysia is ranked sixth in the 2018 Asian Digital Transformation Index. The Dell Technologies Digital Transformation Index the DT Index (2018) in Malaysia in collaboration with Intel. The DT Index, completed in cooperation with mid-to-large businesses, maps the advancement of digital transformation, and analyse the digital expectations and concerns of the company. Research shows that 51% of Malaysian company leaders believe their organization will strive to meet evolving customer requirements, and 48% fear that they will be left behind in about five years Sunil (2018). The DT Index reported that only 3% of Malaysian companies are Digital Representatives, 18% are Digital Users, 28% Digital Reviewers, 41% Digital supports, and 10% digital Innovators by Nexus (2018).

B. Digital Transformation in SMEs

In recent years, digital transformation has expanded the emphasis on data science, social network sites, and web applications, and has changed the marketing position in companies dramatically. Digital innovations shift the company's face, and this shift is growing faster than the speed of organizational change. Organizations need to build technological innovation to address changing business challenges with IT investment powered to satisfy business needs. Digital convergence introduces a new kind of digital technology adoption and use. Over the past two decades, a technological transformation has provided much work by Besson & Rowe, (2012), Cha, Hwang & Gregor (2015). Several studies by Hess et al., (2016), Morakanyane, Grace, and Reilly (2017) has shown how organizations and different businesses have adopted digital technologies and their impact on digital transformation. An MIT Sloan Management Review Research Report (2013) found that 78% of managers and employees across various organizations felt it would be necessary for their organizations to adopt digital transformation J.Berman, (2012) concludes that: development of new business models will be high, Enhancement of operating procedures and enhancement of customer experience will also be high. Sawy and Pavlou, Night (2013) Expand on the age of digital transformation as an impetus for companies to consider changing the IT policy framework from an organizational solution to an integrated IT strategy and corporate strategy. All of these are evidence of organizations growing involvement in digital transformation. In reality, in business boardrooms, digital transformation has now become a regular issue on the table. The research conducted by Harvard Business Review Analytics Services (2014) showed that 50% of client and innovation officials said their companies were already open to technically available new business opportunities.

II. BARRIERS OF DIGITAL TRANSFORMATION

Digital transformation is more than just digital: it's all about renewing business strategies to be customer-centric, flexible, and creative in its core. Many organizations are starting to view online incentives for internal and external customer engagement, as well as broadcasting internal procedures. With ground-breaking, imaginative, and original ideas and technological change, many experienced advertises are now embarking on a quest to reinvent themselves and seize opportunities in the digital age. We are becoming much more IT-intensive as companies grow, which makes the IT world more complex Bughin (2017). But they are some barriers which are effecting digital transformation from Malaysian SMEs by RunddyRamilo, Mohamed Rashid Bin Embi (2014), R. Ramilo, M.Rashid, A. Tarute, E.Vitkauskaite, L.Kloviene (2018), K.Vogelsang, K. Lierentherler, S. Packmohr (2019).

A. Technological Barriers

Technological Barriers can be defined as restricted access to usable, relevant, and acceptable hardware and software, especially in situations when the use of technology viewed as being not adequate to complete the tasks or to achieve the goals in which the technology is initially used. As technology changes day to day, the adoption of new technology is challenging. These technological barriers may have Lack of computers or equipment, Lack of technology training, Insufficient knowledge of team members,

January - February 2020
ISSN: 0193 - 4120 Page No. 560 - 565

Lack of concern in the knowledge of new technology, insufficient skills in the technology, insufficient technology allocation, inadequate R&D knowledge, can be some of the Technological Barriers for Digital Transformation in Malaysian SMEs.

B. Financial Barriers

When high costs make it difficult to afford a specific development, it is called a financial hindrance. Digital Transformation does not happen through investment or cost, demands. However, funding digital transformation activities are especially problematic. A digital transformation effort is often a combination of enhanced market impact and reduced operational costs such as inadequate budget for Digital transformation, company refusal to spend a significant amount of digital tools, high price of digital tools, high equipment set-up fees, Lack of cost-effectiveness for teamwork, financial discouragement, high equipment maintenance costs, Lack of practical costs for the support of digital tools.

C. Organizational Barriers

The organizational Barrier refers to the barriers in the information flow among employees that could contribute to an organization's business failure. Weak Organizational attitude to transform, poor leadership towards digital transformation, lack of authorization and funding for digital transformation, lack of managers to supervise digital technology, insufficient personnel for digital transformation tools, lack of cooperation, lack of coordination, lack of team confidence.

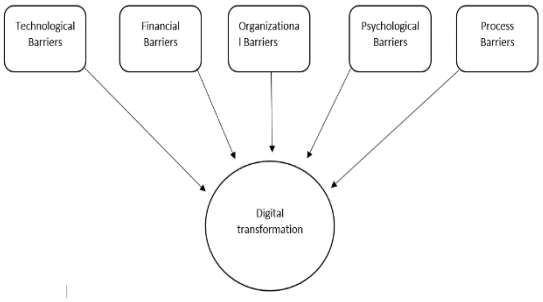
D. Psychological Barrier

Psychological barrier are attitudes that sometimes a person's ability, possibility, self-worth has to do with himself/herself. They may be called patterns of unhealthy or perhaps incorrect thinking. These may include rejection, a perceived lack of social assistance, Work changes, Lack of Psychological Grantee, Anxiety of Production change, Fear of Disappointment, Fear of Failure in Development, Fear of Labor Changes, Fear for low sales, trust in Digital technology.

E. Process Barriers

When introducing Digital Transformation in Malaysian SMEs, they can be system obstacles such as digital device quality and technology, sluggish machine speed in production, Software flexibility to handle complex, insufficient data technical capability to deliver digital innovation.

III. Research Framework



IV. Research Method

The methodology of the research would be discussed in terms of the data gathered, description of the population, observation and adopted research design. Based on Saunders, Lewis, & Thornhill's book (2007), it has been said that three forms of experimental designs are usually used to produce a research paper. The three styles of models are referred to as exploratory, descriptive, descriptive along with explanatory. In the case of this research paper, we are looking into the Barriers of Digital transformation in Malaysian SMEs which will examine elements such as Financial barrier, psychological barriers how are these barriers effecting Digital transformation. This in return would affect the dependant variable which is the Digital Transformation in Malaysian SMEs. Considering these characteristics of the three different research design, it could be said as that research involves two designs which is descriptive along with explanatory.

A. Research Approach

The two forms of methods to analysis are deductive and inductive approaches by Saunders, Lewis & Thornhill (2007). Necessarily, if there is a theory formed along with some theories, a research will make use of the deductive method, and then some methods were generated to check such hypotheses. On the flip side, the inductive method is the inverse of the deductive method. In this, the sense that a researcher using this method can usually only come up with hypotheses after the evidence has been gathered and evaluated.

B. Sample Size

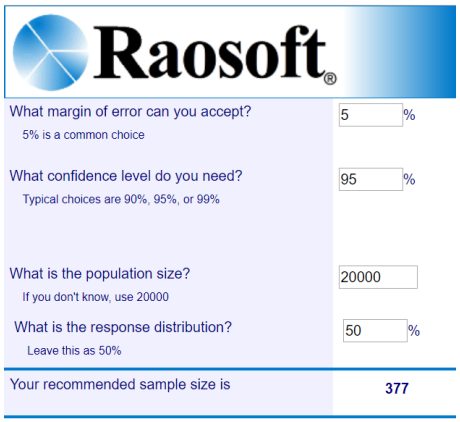
The selected sample size is the number of subjects representing the total population of the research by Sekaran, (2003). Operating with the total population is difficult simply because the scale may be too large. Therefore, irrespective of the sample size, it must

TEST Engineering & Management

January - February 2020
ISSN: 0193 - 4120 Page No. 560 - 565

make generalizations of the population as it must be reflective of the larger picture.

According to the software Raosoft the sample size calculator the minimum, 377 is the recommended sample size to this research as the researcher took 95% of the confidence level.



C. Data Collection Method

Through the self-administered questionnaire method, data required for this research paper was obtained. Questionnaires were delivered personally to employees. Because of this data collection method, this allowed the researcher to randomly assign the questionnaire to any eligible employee working in SMEs. It is also beneficial for the research paper to obtain a diverse range of responses as it would provide better results in the outcome. Basic information such as Role, revenue of the SME, type of SME was done by the researcher. The questionnaire was inspired by RunddyRamilo, Mohamed Rashid Bin Embi (2014).

V. Data Analysis

Quantitative data attained from the study were subjected to profile analysis of the respondents along with some research model estimations using Multiple Linear Regression (MLR), Reliability Analysis via SPSS.

A. Reliability Analysis

Reliability analyses is the most common and essential step to determine that whether the data that has been collected using questionnaire is reliable or not for the analyses. The Independent Variables are combined into IV1 (Technological Barrier), IV2 (Financial Barrier), IV3 (Organizational Barrier), IV4 (Psychological Barrier), IV5 (Process Barrier) and the Dependent variable Trust in Digital Transformation. According to Hair et al (2010), it is said that the value of the Cronbach alpha is not less than 0.7 and not more than 0.9, it is said that the data attainted here is 0.830 we can conclude that all the constructs within this research are up to the standards in terms of reliability.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.830	.848	6

Item Statistics

	Mean	Std. Deviation	N
IV1	2.6691	.62694	487
IV2	2.6104	.43733	487
IV3	2.8443	.58237	487
IV4	2.6186	.71159	487
IV5	2.6016	.78312	487
trust in Digital Transformation	2.6324	.97837	487

Inter-Item Correlation Matrix

	IV1	IV2	IV3	IV4	IV5	trust in Digital Transformatio n
IV1	1.000	.419	.579	.562	.506	.425
IV2	.419	1.000	.536	.437	.396	.329
IV3	.579	.536	1.000	.604	.473	.400
IV4	.562	.437	.604	1.000	.630	.513
IV5	.506	.396	.473	.630	1.000	.420
trust in Digital Transformation	.425	.329	.400	.513	.420	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
IV1	13.3074	7.152	.648	.444	.794
IV2	13.3660	8.199	.530	.327	.822
IV3	13.1322	7.295	.662	.508	.794
IV4	13.3579	6.522	.740	.567	.772
IV5	13.3748	6.559	.635	.445	.795
trust in Digital Transformation	13.3440	6.144	.539	.304	.834

B. Multiple Linear Regression (MLR)

Multiple Linear Regression (MLR) is a mathematical method that uses multiple linear variables to estimate an answer variable's result. Multiple linear regression (MLR) aimed at modelling the linear relationship between the explanatory (independent) variables and the variable response (dependent), Kenton (2019). Findings are picked from the population individually and automatically. Typically, residuals should be distributed with a mean of 0 and variation of π. A quantitative metric (R-squared) is used to calculate how much of the variance in result can be explained by the difference in the independent variables. R^2 also decreases as more predictors are applied to the MLR system, although the predictors might not be correlated with the outcome parameter. Therefore, R^2 alone cannot be used to classify which predictors are to be included in a system and should be omitted. R^2 can be from only 0 to 1, in which 0 indicates no independent variables can be predicted, and one indicates that no independent variables can predict the outcome without an error.

The main important table in MLR is Coefficients Table where the effect is determined by the P-value if the P-value is more than 0.05 accepts the null Hypothesis (H_0) and reject the alternative hypothesis (H_1).

TEST Engineering & Management

January - February 2020
ISSN: 0193 - 4120 Page No. 560 - 565

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.031	.241		-.130	.896
	IV3	.073	.091	.043	.797	.426
	IV1	.226	.079	.145	2.862	.004
	IV2	.154	.103	.069	1.486	.138
	IV4	.426	.077	.310	5.531	.000
	IV5	.130	.064	.104	2.040	.042

a. Dependent Variable: trust in Digital Transformation

This is carried out using the regression equation which is illustrated as;

Y = a + b1X1, b2X2,…….. bnXn

Where, Y= Dependent variable

a = Constant value

b1, b2, b3, bn= B values for independent variables (predictors)

X1, X2, X3, Xn= Independent variables

In this case the Independent Variables are IV1 (Technological Barrier), IV2 (Financial Barrier), IV3 (Organizational Barrier), IV4 (Psychological Barrier), IV5 (Process Barrier) and the Dependent variable Trust in Digital Transformation.

Regression equation analyses is as follows;

Y = a + b1X1, b2X2,…….. bnXn

Digital Transformation = -0.031 + 0.226X(Technological Barrier) + 0.154X(Financial Barrier) + 0.073X(Organizational Barrier) + 0.426X(Psychological Barrier) + 0.130X(Process Barrier)

The significant contribution of the independent variable can also be determined by the Beta coefficient, taking into consideration that P-value should not be more than 0.05. from the above table it can be seen that Technology barrier of Digital transformation (B=0.226, Sig =0.004) which shows it has an significant effect, Financial Barrier of Digital Transformation (B=0.154, Sig=0.138) which shows it does not have any effect, Organizational Barrier of Digital Transformation (B=0.073, Sig=0.426) which shows it does not have any effect, Psychological Barrier of Digital transformation (B=0.426, Sig=0.000) which shows it has an significant effect, Process Barrier of Digital transformation (B=0.130 Sig=0.104) which shows it has an significant effect.

C Hypothesis Results

The below table will summarize the overall results of the hypotheses testing. By keeping view the above analyses we finally conclude that for technological, Financial, Organizational, Psychological, Process Barriers with the Digital Transformation. The 95% confidence level will be considered.

NO.	STATEMENTS	FINDINGS
H1	There is a relationship between Technological Barriers and adoption of the digitalization in SMEs	Accept
H2	There is a relationship between Financial Barriers and adoption of the digitalization in SMEs	Reject
H3	There is a relationship between organizational Barriers and adoption of the digitalization in SMEs.	Reject
H4	There is a relationship between Psychological Barriers and adoption of the digitalization in SMEs.	Accept
H5	There is a relationship between Process Barriers and adoption of the digitalization in SMEs	Accept

VI. Discussion

Below a brief discussion is done on the variables that are effecting digital transformation.

Technological Barriers (IV1) has a significant effect on the digital transformation as this says it is one of the Barriers for the digital transformation in Malaysian SMEs. As we know, technology is one of the most crucial in SMEs the results from the questionnaire the employees stated. They lack equipment, lack of knowledge in team members, lack of knowledge in Digital skills, lack of technical demonstration, lack of adequate skills in the technology, and conservation of technology. For a country like Malaysia, it is more crucial to have the technology.

Psychological Barrier (IV4) has a significant effect on the Digital transformation as this says it is also the Barrier for the Digital transformation in Malaysian SMEs. As we know, Psychology is one of the most crucial in Employees to work in an SMEs the results from the survey shows that. They cannot adapt for the work changes, lack of psychological Guarantee about Digital transformation, fear of invention changes, and fear for the profit loss and increased in Labour cost. This Variable is crucial to any SMEs in World.

Process Barrier (IV5) Has a significant effect on the Digital transformation as this says it is also the Barrier for the Digital Transformation in Malaysian SMEs. as we know Process is also important for the transformation employees say, that their company does not perform Digital tools, the computers are slow in Process, the minimum availability of digital tools to deliver the Digital transformation are not there.

VII. Limitations and future recommendations

The first and primary limitation of this research is the cross-sectional time horizon due to lack of time the researcher has to limit the data, sample size, some other effecting IVs. This research is only limited to the SMEs which are in Malaysia.

January - February 2020
ISSN: 0193 - 4120 Page No. 560 - 565

First of all, a research in this area in future can be better if it was done with a large sample size and covered more states in Malaysia. Instead of it being a cross-sectional study, it can be a longitudinal study, the duration of the research can be longer which allows for the other researchers to gather more information from a wide range respondent. The analysis would be more conclusive and comprehensive.

In addition to this, they can be more variables that can be added to the research such as Government Barriers, knowledge Barriers. These barriers can be proven that whether they are affecting or not. This research can also be done in many countries in the world to get the Barriers of that that particular country.

Lastly, making comparative analysis can be the big step for a researcher who would like to explore this topic in the future. There are so many ways which comparative analysis could be done. They can be comparison between the technological and financial, organizational with Psychological.

REFRENCES

1. Abdinnour-Helm, S., Lengnick, M. L., & Lengnick, C. A. (2003). Pre-implementation attitudes and organizational readiness for implementing an Enterprise Resource Planning system. *European Journal of Operational Research 146 (1)* , 258-273.
2. Adams, J. W. (2007). *Malaysia and the Knowledge Economy: Building a World-Class Higher Education System* . The World Bank.
3. Bughin, J., 2017. *Mckinsey.* [Online] Available at: https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/the-case-for-digital-reinvention
[Accessed february 2019].
4. Bagozzi, R. P., & Philipps, L. W. (1982). Representing and testing organizational theories: A holistic construal. *Administrative Science Quarterly 27 (1)* , 459-489.
5. Barclay, D., Higgins, C., & Thompson, R. (1995). The Partial Least Squares (PLS) Approach to Causal Modeling: Personal Computer Adoption and Use as an Illustration. *Technology Studies 2 (2)* , 285-309.
6. Genus, A., 2007. Bridging the Digital Divide in Malaysia: An Empirical Analysis of Technological Transformation and Implications for E-development. *Asia Pacific Business Review* , 13(1), pp. 95-112.
7. J.Berman, S., 2012. Digital transformation: Opportunities to create new business models. *Strategy and Leadership,* 40(2), pp. 16-24.
8. Lee, J., 2018. *the star.* [Online] Available at: https://www.thestar.com.my/business/smebiz/2018/12/24/propelling-smes-in-the-digital-world/
[Accessed 24 december 2018].
9. Mohan, Y. D. S., 2018. *huawei.* [Online] Available at: https://www.huawei.com/minisite/accelerating-malaysia-digital-smes/img/sme-corp-malaysia-huawei.pdf
[Accessed 6 september 2018].
10. Nexus, A., 2018. *Malaysian Business.* [Online] Available at: http://www.malaysian-business.com/index.php/general-news/item/2321-dell-malaysia-reveals-digital-transformation-index-2018
[Accessed 25 October 2019].
11. Ramilo, R. and Embi, M. (2014). Critical analysis of key determinants and barriers to digital innovation adoption among architectural organizations. *Frontiers of Architectural Research*, 3(4), pp.431-451.
12. Saunders, M., Lewis, P., & Thornhill, A. (2007). *Research Methods for Business Students (4th Edition).* United Kingdom: Pearson Education Limited.
13. Senaratne, S., Kagioglou, M., & al., e. (2005). Research Knowledge Transfer into teaching in the built environment. *Journal of Engineering, Construction and Architectural Management* , 587 - 600.
14. Sunil, P., 2018. *Human resoruces online.* [Online] Available at: https://www.humanresourcesonline.net/malaysia-ranks-6th-on-asian-digital-transformation-index-2018/
[Accessed 14 december 2019].
15. The World Bank, 2018. *The World Bank.* [Online] Available at: https://www.worldbank.org/en/country/malaysia/publication/malaysias-digital-economy-a-new-driver-of-development
[Accessed 12 September 2019].