



## Factors Affecting the Adoption of Digital Transformation among SME's in Malaysia

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### Abstract

Digital Transformation has not been foreign to people in emerging economic growth, especially SME entrepreneurs in developing countries such as Malaysia. Digital transformation adoption is a way for an enterprise to improve the use of technology in a better way. But as the digital revolution has been evolving, there are still a few entrepreneurs who neglect it. The purpose of the present study is to investigate the factors affecting the adoption which is (competitive pressure, technology advancement, cost minimization, and environmental influence) on digital transformation adoption among SMEs in Malaysia. The relationship also consists of a moderating effect which is environment shock (pandemic covid-19) between the independent variable and dependent variable. The study also provides some knowledge for a deeper understanding of digital transformation and a guide to all SME entrepreneurs and others.

**Keywords:** Digital Transformation Adoption; Factors affecting; Environmental Shock (Pandemic Covid-19); SMEs; Malaysia

## Introduction

Malaysia is a country in Southeast Asia that has fourteen states that separated by the south china sea into two Peninsular regions and Borneo's East Malaysia. Malaysia is not a large country but can be said to be one of the developing country. Being one of the developing country, entrepreneurs in Malaysia seize opportunities to make profit. Since Malaysia is the strongest e-commerce market in ASEAN cited by Leu and Masri (2019), there are a lot of small and medium-sized enterprises (SMEs) have grown in Malaysia. SMEs had a significant influence on the growth of the economy in Malaysia. According to the articles SME landscape of Malaysia (2019), it stated that 98.5% of all business establishment in Malaysia was from SMEs. In 2018 SME's was contributed RM521.1 billion of gross domestic product (GDP) and for sure they are a bigger job provider in Malaysia. Increasing number of SME entrepreneurs will create greater competitive landscape. Competition is often intense for Malaysian SME entrepreneurs and they cannot influence either price or quantity (Rassool and Dissanayake, 2019). Meanwhile, with the adoption of digital transformation it will help these SME entrepreneurs the strategy and business models to be reshaped (Rassool and Dissanayake, 2019). With the use of the Internet and online activities, SMEs may change their business which is they can see the importance of the Internet in their growth strategy (Ramayah et al., 2016).

Majority nowadays all activities was influence by machines and the old outdated reporting methods were replaced with electronic record management system in paper-back formats (Anon, 2020). According to Agushi (2019), Digital transformation consists of the words "digital" and "transformation," of which the first applies to emerging technology in today's world, while the latter defines new forms of innovation and creativity allowed by digital technologies. With information sharing practices and mutual understanding, the businesses integrate with suppliers and customers (Sheikh Muhamad et. al., 2019). Digitalization refers to a firm's adoption of digital technologies into any business aspect that can be digitalized to achieve specific goal, such as accelerating the internationalization process (Yin, 2020). From holistic point of view, digital transformation is described as the changes associated with the implementation of digital technology in all aspects of human society (Agushi, 2019). The use of digital technology to have a fundamental effect on all facets of business and society is also known as digital transformation (Heavin & Power, 2018). Digitalization changes the process of purchasing decision making, including the way clients search for data, consider and compare products and services, connect with the business and make transactions (Bistra Vassileva( University Of economics - Varna/Department of Marketing, Varna, 2017). Digitalization may therefore increase the export propensity of domestic small and medium-sized enterprises (SMEs) as a strategy for firm survival or firm growth when they perceive some danger or opportunity (Yin, 2020). SME's give a positive impact and important factors that influence the country's development process (Azam & Quaddus, 2012).

Looking into the situation nowadays, the rapid growth of the economy leads to the increasing of competitors among SMEs. Increasing the competitors will affect them on how to maintain their business (Li, Lu, and Talebian, 2015). Competition between Online platforms or intermediaries and brick and mortar business has a bigger gap between them (Popescu, 2018). The problem is an increasing number of competitors will lowering their market capture. With the digital transformation adoption, they still in competition but they can capture large market and can find a uniqueness on their product especially on their marketing platform. Even though they still competing in online but at the same time, their expanded of the business is difference each other's. In addition, looking on advertising aspect even though all of them are using an online but still every one use a difference marketing channel such as using FB ads, email, other social media etc. So the real problem is when they are not switching to digitalize, the increasing of competitors will affect them. They cannot grow up and the business has no speciality and uniqueness. Sometimes some entrepreneurs lacked digitalization knowledge. But they should know that the adoption of digital transformation is one of the ways that entrepreneurs can be maintaining their business and can guide them on achieving customer needs and wants especially using online shopping.

## Literature Review

The variable has been identified based on the Unified Theory of Acceptance and Use of Technology (UTAUT), by Ahmad (2015) that was introduced as a technology acceptance among the people. It is quite related to this study that is about digital transformation adoption which is the use of technology.

### Digital Transformation Adoption

Digital transformation has brought disruptive economic changes and is transforming the way businesses work today (Agushi, 2019). Digital transformation was transformed from the original business to other businesses in a way using technology. The technology was including machines, social media, mobile devices, or any things related to the internet. Social media has become a widely-adopted technology since it was introduced to the world, affecting businesses in myriad ways (Muhammad et. al., 2020). In contrast to direct competitors, the adoption of digital transformation can have a positive effect on company performance measured by profitability, return on investment, and revenue growth (Agushi, 2019). There are clear reasons to adopt these rapidly changing innovations, such as lowering costs, increasing productivity, and enhancing consumer relationships and satisfaction, but many businesses across industries are struggling to adjust to the digital age (Karltorp, 2017). The adoption of digital transformation will affect main business operations and goods and processes (Karltorp, 2017). If SMEs do not change the way they do business and be digitize, they having high risks of being redundant and not just lose the benefit of expanding their market (Leu & Masri, 2019).

The adoption of digital transformation will give an impact on businesses such as innovative transparency cited by Nambisan, Wright, and Feldman (2019), by using the internet, online communication, online transactions, e-commerce, e-tax, e-service, enterprise systems, and so on, (Azam & Quaddus, 2012). Digitalization has also been seen as an opportunity for small businesses to enter foreign markets (Yin, 2020).

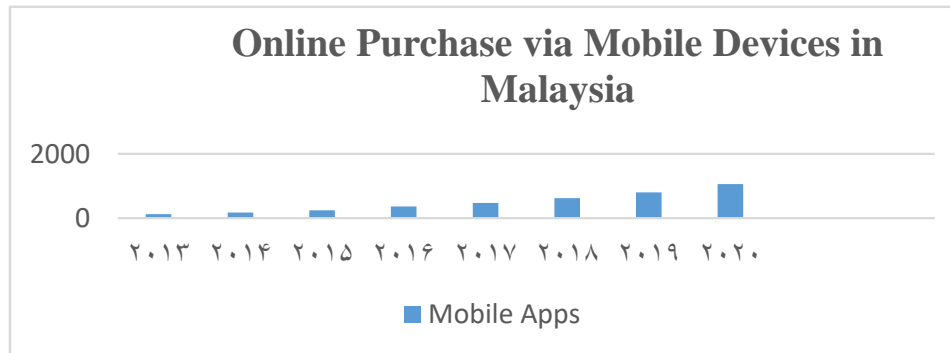


Figure 1: Statistics of online purchase via mobile devices in Malaysia  
Source: Euromonitor, (2017)

According to Euromonitor (2017), the statistic shows the result of online purchases via mobile devices in Malaysia. This is the real evidence that Malaysia leading in the online business and Malaysian people are keen to changes (Mahmood et al., 2019). In 2013 it stated that 120 million sales come from mobile apps which is including online business, online transfer, social media, and all the mobile applications. The sales keep increasing until 2020. This shows that the adoption of digital transformation in Malaysia was already acceptable and give a positive impact on both entrepreneurs and customers. It shows that the use of technology helps us to perform tasks faster and the use of technology improves our efficiency (Azam & Quaddus, 2012). Actually, in 2020 the increase of sales in online purchases via mobile devices is expected to double because of the outbreak of a new virus that affected around the world and force people to stay at home and tend to shopping in online. In conclusion, the internet helps SME's to communicate with web consumers and take advantage of the positive ads resulting from word-of-mouth marketing in real-time (Camilleri, 2019). It showed that online channels have a positive influence on customer-oriented processes, like every other social network, which in turn affects an organization's sales efficiency (Pelletier & Cloutier, 2019).

### Competitive Pressure

Competitive pressure is an effect on business or firm that involves product and operations. The effect from the competitive pressure will lead a business-facing difficulties and the worst effect has become bankruptcy if the firm or business didn't do an initiative to settle the problem. In the emerging economy, the pressure from the rapidly increasing of competitors is one of the factors that entrepreneurs step in digital transformation. The expectations of competitive pressure by

SME's affect their decision-making switched towards digital transformation (Tyler et al., 2020). Competitors are one of the items in competitive pressure, especially for SMEs. One of the factors that influence awareness of digital transformation adoption is increasing the number of competitors in the industry. Based on a statistic from SME Corp Malaysia, (2018), a year by year the number of entrepreneurs keeps increasing and it will give pressure on existing entrepreneurs. So many businesses are switching to digital transformation measures to gain a competitive advantage, to satisfy consumers with increased demand for digital solutions, or simply because it is important for survival (Karlton, 2017). Market globalization and business internationalization are one example of new competitive pressures (Karlton, 2017).

Proposition 1: There is a significant relationship between Competitive pressure and digital transformation adoption among SMEs in Malaysia.

### **Technological Advancement**

The advancement of technology forces an SME's entrepreneur to be more digitalize in their business. The variables were adapted from the Unified Theory of Acceptance and Use of Technology (UTAUT) which is in line with the effort expectancy that describes the ease of use of technology and the value of technology. The use and knowledge of instruments, techniques, crafts, systems or methods can be described as technology (Miah & Omar, 2012). The rapid growth and unprecedented impact of new technologies, especially ICTs, including the internet, have raised global awareness of the power among SME's (Miah & Omar, 2012). With technological advancement, an entrepreneur can make a good strategy such as a time-based strategy that the strategy focuses on the reduction of time needed to accomplish tasks and a quality-based strategy that focuses on quality in all phases of an organization. Advancing technology will help businesses outperform their competitors (Sin et al., 2016). Due to the increasing usage of the internet, it makes communication between humans and machine are easier (Popescu, 2018).

Proposition 2: There is a significant relationship between Technological advancement and digital transformation adoption among SMEs in Malaysia.

### **Cost Minimization**

One of the reasons business failures are because of improper money management. Studies have also shown that cost efficiency is a significant factor in the implementation of emerging technologies (Ainin et al., 2015). The higher cost needed is a higher opportunity to fail. Based on the problem statement that SME's entrepreneur was having a problem with money and difficulties borrowing money from a loan bank because of the firm size. Almost all SME's entrepreneur was having a problem in build trust with a bank to get a loan and investor that why most of them switch to digital transformation because it can minimize their cost. For example, transform to digitalize will help them operated the business using online such as websites, social

media, and no need for a store to make a buying-selling process. Another example is for different organizational purposes, SMEs have used Facebook for marketing, communication, distribution, advertisement, creativity, problem-solving, customer care, human resources, IT, pushing cultural change, etc. (Nouri et al., 2012). It will save costs for paying a rental or utilities. It will also save time needed and easier for both customers and entrepreneurs. Small companies are more likely to implement internet technologies that are considered to be low cost (Ramayah et al., 2016).

Proposition 3: There is a significant relationship between Cost minimization and digital transformation adoption among SMEs in Malaysia.

### **Environmental Influence**

According to (Karltop, (2017) Environmental influence is the force of changes occurring within the broader context in which the organization operates as an example social, political, economic, governmental, legal, technological, and demographic. The environmental influence include the economy, society, and culture. The environmental pressure is derived from competitors, business partners, and suppliers, customers, and expectations of sales (Ramayah et al., 2016). Environmental influence will force an entrepreneur to the adoption of digital transformation even though their business not having a problem but because of environmental influence lead them to make changes. The digitalization process is often influenced by environmental factors such as market dynamics, high or low technology industry, and company specialization (Tyler et al., 2020).

Proposition 4: There is a significant relationship between Environmental influence and digital transformation adoption among SMEs in Malaysia.

### **Moderating Effect of Environmental Shock (Pandemic Covid-19)**

The novel coronavirus (COVID-19) from Wuhan, China, has spread to more than 125 countries worldwide, infecting more than 1,000,000 people and over 100,000 people have died. In addition to being a public health issue, pandemic Covid-19 has significant ramifications for the global economy, and analysts have estimated that pandemic Covid-19 will decrease global gross domestic product growth by half a percentage point (from 2.9% to 2.4%) by 2020. The whole world is now a single global society, where every significant incident in one portion is bound to have an impact on the rest of the world (M. Gupta et al., 2020). This pandemic triggered fear, in addition to devastating levels of mortality, and seriously impacted the global economy and trade (Fernandes, 2020). In 2020, global trade will decrease in every area of the world and affect all sectors of the economy (Papadopoulos et al., 2020). At the same time, governments across the world are issuing policies and enforcing action plans to avoid the spread of the Covid-19 outbreak, including restrictions (i.e. lock-downs of nations, temporary closure of physical operations of companies) (Papadopoulos et al., 2020). Hence, SMEs need to take a constructive, integrated approach that will enhance the daily life of the local, national and global communities.

Dramatic environmental changes have been triggered by the pandemic Covid-19 encouraging businesses to embrace emerging technologies on a broader scale and under time pressure (Priyono et al., 2020). Therefore, with digital transformation adoption, a business will survive in this hard time. According to Sharon chang (2020), news about the adoption of digital transformation in the Covid-19 era, it stated that SME's entrepreneur in Malaysia finally woke up and realize about the adoption of digital transformation is a priority in their business and daily life because of this pandemic. For this reason, digital transformation adoption is seen as an effective response to the disruptive changes caused by the pandemic of Covid-19. The result of the pandemic is different and more drastic than the conventional one in which human creativity causes changes (Ratnasingam et al., 2020). The situation not only causes losing their customer but many of them face decreasing profit, challenges in production, challenges in supply chain disruption and government restriction force them to close their business operation especially business in the store.

Proposition 5a: Environmental shock (Pandemic Covid-19) moderates the relationship between competitive pressure and digital transformation adoption among SMEs in Malaysia.

Proposition 5b: Environmental shock (Pandemic Covid-19) moderates the relationship between technological advancement and digital transformation adoption among SMEs in Malaysia.

Proposition 5c: Environment shock (Pandemic Covid-19) moderates the relationship between cost minimization and digital transformation adoption among SMEs in Malaysia.

Proposition 5d: Environmental shock (Pandemic Covid-19) moderates the relationship between environmental influence and digital transformation adoption among SMEs in Malaysia.

### Proposed Conceptual Framework

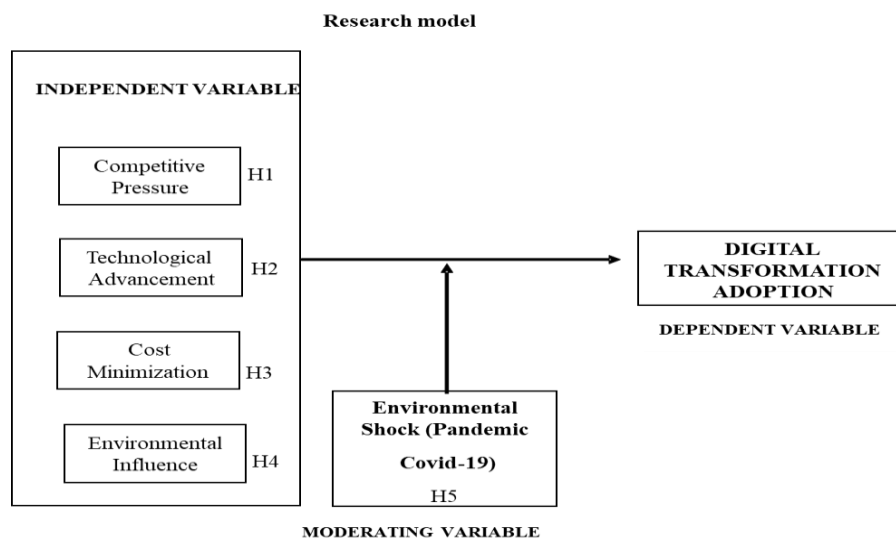


Figure 2: Research Framework

## Materials and Methods

In this study, a quantitative method that been used by the researcher as a research design. The quantitative method is using questionnaires that are set up by the researcher consist of questions related to the research title. The research has already determined who will be respondents in these questionnaires in parallel with this research. However, the target respondent to answer these questionnaires is an entrepreneur from SME's in Malaysia. The sample size was derived on the basis of  $p < 0.05$  for this study (at 95% confidence level) which is Sample Size by Krejcie and Morgan (1970) at least 384 of respondents are involved. In this study, the method for an answer these questionnaires, the researcher uses a Likert scale to measure the response and to get accurate data and to measure how respondents feel about something or to measure the detailed and correct answer about the questions. Meanwhile, the sampling method was chosen, which a simple random sampling. The Statistical Software Package (SPSS) and the Partial Least Squares (PLS) is used to analyze the data.

## Results

A total of 650 sets of questionnaires are distributed through email and social networking platforms. Thus, the total number of respondents collected from email and social networking platforms is 351 from 650 which is 54% of that collection.

On a five (5) point Likert scale, from the analysis, it was indicated that respondents rated their knowledge of digital transformation on the item "Benefit of Digital Transformation is that there is a faster channel of communication between consumers and business owners" as the highest mean score ( $M=4.79$ ,  $SD=0.479$ ). This indicating that most SMEs agreed with that statement which is about the benefit of digital transformation. The lowest mean, ranked by the respondents was "I already switched to Digital Transformation" ( $M=4.55$ ,  $SD=0.826$ ) indicating that the tendency to switching their business to digital transformation.

Similarly, for competitive pressure the mean range is between 4.61 and 4.72. From the analysis, it was indicated that the respondents are encouraged in switching to digital transformation because of the growing customer base in online shopping is the highest result conduct ( $M=4.72$ ,  $SD=0.552$ ). Meanwhile, the lowest ( $M=4.61$ ,  $SD=0.691$ ) is indicates "Increasing number of competitors will affect my business".

For technological advancement respondent perceived "I believe that using technology nowadays will help me improve my business" ( $M=4.78$ ,  $SD= 0.486$ ) to be the highest technological advancement mean and the next highest being "Social media is a channel for marketing and promotions" ( $M=4.77$ ,  $SD=0.497$ ). All items in the technological advancement variable (mean score above 4.72) indicated a high mean that is consistent with the past study by Chen et al. (2001). There are two lowest mean in this variable that indicates "In my opinion, technology not only changes how products are manufactured, but also the behavior of



competitors, customer, and the business context” (M=4.72, SD=0.537) and “Technological advancement help to build a better relationship between customer satisfaction, loyalty, and retention” (M=4.72, SD=0.540).

The mean and standard deviations of the cost minimization show respondents rated their knowledge of cost minimization “Cost minimization is a factor that influence adaption of Digital Transformation of SMEs” (M=4.72, SD= 0.573) as their highest mean. The lowest mean, ranked by the respondents on their knowledge of cost minimization was “I believe switching to Digital Transformation can minimize cost.” (M=4.56, SD= 0.625) followed by the next lowest “Switching to Digital transformation can reduce working hours” (M=4.60, SD= 0.741).

From the analysis, it was indicated that respondents rated their knowledge of environmental influence on the item “Economic factors motivated SMEs to Digital Transformation” (M=4.72, SD=0.513) and “The growing culture of online shopping motivated me to Digital Transformation” (M=4.72, SD=0.544) as the highest mean score. This indicating that economic factors and the growing culture of online shopping is a cause of most SMEs switching to digital transformation. The lowest mean, ranked by the respondents was “Cultural factors motivate me switched to Digital Transformation” (M=4.67, SD=0.613).

For mean scores of the environmental shock (Pandemic Covid-19) variable, respondents seem strongly agreed that about this variable as it ranked highest in its mean scores especially with the item of “Pandemic Covid-19 is strong factor in environmental issues nowadays” (M=4.77, SD=0.532). There are two items that at same mean which is items “Pandemic Covid-19 influence me switched to Digital Transformation” (M=4.74, SD=0.548), and items “The arrival of pandemic Covid-19 influence me switched to using technology such as social media in my business” (M=4.74, SD=0.535). Meanwhile “My business model was disrupted by Pandemic Covid-19” will be the lowest mean (M=4.63, SD=0.721). It shows that not all the SMEs were disrupted by this pandemic Covid-19.

Table 1: Summary of Findings

<b>Hypotheses: Direct effect</b>			<b>Results</b>
H1	:	There is a significant relationship between Competitive pressure and digital transformation adoption among SMEs in Malaysia.	<b>Accepted</b>
H2	:	There is a significant relationship between Technological advancement and digital transformation adoption among SMEs in Malaysia.	<b>Accepted</b>
H3	:	There is a significant relationship between Cost minimization and digital transformation adoption among SMEs in Malaysia.	<b>Accepted</b>
H4	:	There is a significant relationship between Environmental influence and digital transformation adoption among SMEs in Malaysia.	<b>Accepted</b>
H5	:	There is a significant relationship between Environmental shock (pandemic Covid-19) and digital transformation adoption among SMEs in Malaysia.	Rejected
<b>Hypothesis: Moderating effect</b>			
H5a	:	Environmental shock (Pandemic Covid-19) moderates the relationship between competitive pressure and digital transformation adoption among SMEs in	Rejected

		Malaysia.	
H5b	:	Environmental shock (Pandemic Covid-19) moderates the relationship between technological advancement and digital transformation adoption among SMEs in Malaysia.	Rejected
H5c	:	Environmental shock (Pandemic Covid-19) moderates the relationship between cost minimization and digital transformation adoption among SMEs in Malaysia.	<b>Accepted</b>
H5d	:	Environmental shock (Pandemic Covid-19) moderates the relationship between environmental influence and digital transformation adoption among SMEs in Malaysia.	Rejected

## Conclusion

In terms of contributing to Gross Domestic Product (GDP) and employment, SMEs are a major and important part of the Malaysian economy. Because of its advantages and other factors, SMEs have been shown to adapt rapidly to the implementation of digital transformation. This research aims to explore, using a quantitative approach, the main factors affecting the adoption of digital transformation among SMEs in Malaysia. These findings are consistent with the factors listed in the literature review portion of the previous studies presented. Until then the study was undertaken in conjunction with the emerging situation that has affected the pandemic covid-19 worldwide. Thus, environmental shock (pandemic Covid-19) was measured for each relationship as a moderator variable. Based on the result, it shows that SMEs are switching to digital transformation because of all the variables that have been examined, in the meantime the relationship was not moderated by arriving pandemic covid-19 except relationship cost minimization and digital transformation adoption. This research can be a guideline for all SMEs to the fact that getting a business problem and switching to digital transformation would be a tool to solve their problem. This research recommends that SMEs should be using this transformation in their business to get its benefits especially in this current situation which is on the arrival of pandemic covid-19. Further research should investigate the strategic implementation of digital transformation deeper. Researcher hope that future studies will benefit from the findings of this study. Although this research has some limitations, it considers the initial phase taken in the study that incorporates the digital transformation adoption aspect.

## Conflict of interest

The authors declare no potential conflict of interest regarding the publication of this work. In addition, the ethical issues including plagiarism, informed consent, misconduct, data fabrication and, or falsification, double publication and, or submission, and redundancy have been completely witnessed by the authors.

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## References

- Agushi, G. (2019). Understanding the Digital Transformation Approach – A Case of Slovenian Enterprises. July, 77. <https://doi.org/10.13140/RG.2.2.34147.71207>
- Ahmad, M. I. (2015). Unified Theory of Acceptance and Use of Technology ( UTAUT ) A Decade of Validation and Development. August.
- Ainin, S., Parveen, F., Moghavvemi, S., Jaafar, N. I., & Shuib, N. L. M. (2015). Factors influencing the use of social media by SMEs and its performance outcomes. *Industrial Management and Data Systems*, 115(3), 570–588. <https://doi.org/10.1108/IMDS-07-2014-0205>
- Angstrom, J. (2011). *For Peer Review For Peer Review*, 0, 4–11.
- Azam, M. S., & Quaddus, M. (2012). Effects of Internal and External Factors on Internet-Based Digital Technology Usage by SMEs in a Developing Country. *Communications of the IIMA*, 12(4), 41–69. <http://search.proquest.com/docview/1346907336?accountid=49672>
- Beneito, P., Coscollá-Girona, P., Rochina-Barrachina, M. E., & Sanchis, A. (2015). Competitive Pressure and Innovation at the Firm Level. *Journal of Industrial Economics*, 63(3), 422–457. <https://doi.org/10.1111/joie.12079>
- Bistra Vassileva( University Of economics - Varna/Department of Marketing, Varna, B. (2017). Marketing 4.0: How Technologies Transform Marketing Organization. *Óbuda University E-Bulletin*, 7(1), 47–56. [https://www.researchgate.net/publication/317077452\\_Marketing\\_40\\_How\\_Technologies\\_Transform\\_Marketing\\_Organization](https://www.researchgate.net/publication/317077452_Marketing_40_How_Technologies_Transform_Marketing_Organization)
- Camilleri, M. A. (2019). The SMEs' technology acceptance of digital media for stakeholder engagement. *Journal of Small Business and Enterprise Development*, 26(4), 504–521. <https://doi.org/10.1108/JSBED-02-2018-0042>
- Castagna, F., Centobelli, P., Cerchione, R., Esposito, E., Oropallo, E., & Passaro, R. (2020). Customer knowledge management in SMEs facing digital transformation. *Sustainability (Switzerland)*, 12(9), 1–16. <https://doi.org/10.3390/su12093899>
- Devanur, N. R. (2009). A Computational Theory of Awareness and Decision Making. 99–107.
- Drake, E. (2019). Digital transformation. IT3/HWC 2019 - 37th International Conference on Thermal Treatment Technologies and Hazardous Waste Combustors, April. <https://doi.org/10.4324/9781003022435-5>
- Emocracy, L. O. D., Merica, I. N. A., & Shkabatur, J. (2011). Cities @ Crossroads : Digital Technology and. 11(11), 371–392. <https://doi.org/10.15458/ebr.91>

- Fan, Q. (2016). Factors Affecting Adoption of Digital Business: Evidence From Australia. *Global Journal of Business Research*, 10(3), 79–84. [www.theIBFR.com](http://www.theIBFR.com)
- Fernandes, N. (2020). Economic effects of coronavirus outbreak ( COVID-19 ) on the world economy Nuno Fernandes Full Professor of Finance IESE Business School Spain. *SSRN Electronic Journal*, ISSN 1556-5068, Elsevier BV, 0–29.
- Gupta, M., Abdelmaksoud, A., Jafferany, M., Lotti, T., Sadoughifar, R., & Goldust, M. (2020). COVID-19 and economy. *Dermatologic Therapy*, March. <https://doi.org/10.1111/dth.13329>
- Gupta, P. H., Mehta, S., & Mehta, S. K. (1989). Effect of vitamin A deficiency on hepatic and intestinal drug metabolizing enzymes in rats. In *Biochemistry International* (Vol. 19, Issue 1).
- Handoko, F., Smith, A., & Burvill, C. (2014). The role of government, universities, and businesses in advancing technology for SMEs' innovativeness. *Journal of Chinese Economic and Business Studies*, 12(2), 171–180. <https://doi.org/10.1080/14765284.2014.900968>
- Heavin, C., & Power, D. J. (2018). Challenges for digital transformation—towards a conceptual decision support guide for managers. *Journal of Decision Systems*, 27(May), 38–45. <https://doi.org/10.1080/12460125.2018.1468697>
- Karltorp, L. (2017). Digital transformation strategies in small businesses: A case study in the Swedish manufacturing industry. 61. <http://www.diva-portal.org/smash/get/diva2:1115635/FULLTEXT01.pdf>
- Lara, J. C. B., García, J. C. P., & Chico, C. O. (2017). Tourism SMEs in a Digital Environment: Literature Review. *European Scientific Journal*, ESJ, 13(28), 429. <https://doi.org/10.19044/esj.2017.v13n28p429>
- Lederer, A. L., Maupin, D. J., Sena, M. P., & Zhuang, Y. (2000). The technology acceptance model and the World Wide Web. 30–34.
- Leu, J. F. Y., & Masri, R. (2019). DILEMMA OF SMEs IN BUSINESS DIGITIZATION : A CONCEPTUAL ANALYSIS OF RETAIL SMEs IN MALAYSIA. *International Transaction Journal of Engineering , Management , & Applied Sciences & Technologies*, 10(7), 925–936.
- Li, L., Su, F., Zhang, W., & Mao, J. Y. (2018). Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal*, 28(6), 1129–1157. <https://doi.org/10.1111/isj.12153>
- Li, Z. E., Lu, Q., & Talebian, M. (2015). Online versus bricks-and-mortar retailing: A comparison of price, assortment and delivery time. *International Journal of Production Research*, 53(13), 3823–3835. <https://doi.org/10.1080/00207543.2014.973074>
- Mahmood, F., Khan, A. Z., & Khan, M. B. (2019). Digital organizational transformation issues, challenges and impact: A systematic literature review of a decade. *Abasyn Journal of Social Sciences*, 12(2). <https://doi.org/10.34091/ajss.12.2.03>
- Marie, K., & Williams, B. (1985). Self-awareness theory and decision theory : a theoretical and empirical integration.

- Maskun, R., Musa, R., & Saidon, J. (2020). Are Malaysian organizations ready to be digitalized? Lesson learned on digital resources implementation. *Malaysian Journal of Consumer and Family Economics*, 24(S1), 89–103.
- Miah, M., & Omar, A. (2012). Technology Advancement in developing countries during Digital Age. *International Journal of Science and Applied Information Technology*, 1(1), 30–38. <http://warse.org/info/ijisait05112012.pdf>
- Miltgen, C. L., Henseler, J., Gelhard, C., & Popovič, A. (2016). Introducing new products that affect consumer privacy: A mediation model. In *Journal of Business Research* (Vol. 69, Issue 10). <https://doi.org/10.1016/j.jbusres.2016.04.015>
- Muhammad Asyraf Hasima, Muhammad Shahrinb, Rosni Ab. Wahid (2020). Influences of Media Richness on Instagram towards Consumer Purchase Intention: The Mediating Effect of Brand Equity. *International Journal of Innovation, Creativity and Change*. Vol. 10, Issue 11, 2020.
- Nambisan, S., Wright, M., & Feldman, M. (2019). The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes. *Research Policy*, 48(8), 103773. <https://doi.org/10.1016/j.respol.2019.03.018>
- Nouri, P., Jamali, B., & Ghasemi, E. (2012). The role of experience on techno-entrepreneurs' decision making biases. *Management Science Letters*, 2(6), 1957–1964. <https://doi.org/10.5267/j.msl.2012.06.026>
- Pakurár, M., Haddad, H., Nagy, J., Popp, J., & Oláh, J. (2019). The service quality dimensions that affect customer satisfaction in the Jordanian banking sector. *Sustainability (Switzerland)*, 11(4), 1–24. <https://doi.org/10.3390/su11041113>
- Papadopoulos, T., Baltas, K. N., & Elisavet, M. (2020). Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information. January.
- Pelletier, C., & Cloutier, L. M. (2019). Challenges of Digital Transformation in SMEs: Exploration of IT-Related Perceptions in a Service Ecosystem. *Proceedings of the 52nd Hawaii International Conference on System Sciences*, 6, 4967–4976. <https://doi.org/10.24251/hicss.2019.597>
- Popescu, E. S. (2018). The Digital Transformation of Tourism SMEs in the European Union: Challenges, Opportunities, and Support.
- Priyono, A., Moin, A., & Putri, V. N. A. O. (2020). Identifying digital transformation paths in the business model of SMEs during the COVID-19 pandemic. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4), 1–22. <https://doi.org/10.3390/joitmc6040104>
- Ramayah, T., Ling, N. S., Taghizadeh, S. K., & Rahman, S. A. (2016). Factors influencing SMEs website continuance intention in Malaysia. *Telematics and Informatics*, 33(1), 150–164. <https://doi.org/10.1016/j.tele.2015.06.007>
- Rassool, R., & Dissanayake, R. (2019). Digital Transformation for Small & Medium Enterprises (SMEs): *International Journal of Business and Management*, Vol.7, No.4 (August), pp.55–76.

- Ratnasingam, J., Khoo, A., Jegathesan, N., Wei, L. C., Latib, H. A., Thanasegaran, G., Liat, L. C., Yi, L. Y., Othman, K., & Amir, M. A. (2020). How are small and medium enterprises in Malaysia's furniture industry coping with COVID-19 pandemic? Early evidences from a survey and recommendations for policymakers. *BioResources*, 15(3), 5951–5964. <https://doi.org/10.15376/biores.8.3.5951-5964>
- Saleh, A., & Ndubisi, N. (2006). An evaluation of SME development in Malaysia. *International Review of Business ...*, 2(1), 1–14. <http://www.geasiapacifico.org/documents/IBRP1.pdf>
- Saleh, A. S., & Ndubisi, N. O. (2006). SME Development in Malaysia : Domestic and Global Challenges. Working Paper 06-03, Department of Economics, University of Wollongong, 2006., 29. <http://www.uow.edu.au/commerce/econ/wpapers.html>
- Shafi, M., Liu, J., & Ren, W. (2020). Impact of COVID-19 pandemic on micro, small, and medium-sized Enterprises operating in Pakistan. *Research in Globalization*, 2, 100018. <https://doi.org/10.1016/j.resglo.2020.100018>
- Sheikh Muhamad Hizam Sheikh Khairuddin, Zuhair Hassan Qureshi, Rosni Ab. Wahid, Shehnaz Tehseen, Zulfiqar Hussain Pathan<sup>3</sup> & Mohammad Rafat Khan (2019). A Conceptual Study on Contingent Impact of External Integration on Innovation Sme Business Success Relationship. *International Journal of Financial Research* Vol. 10, No. 5, Special Issue; 2019.
- Sin, K. Y., Osman, A., Salahuddin, S. N., Abdullah, S., Lim, Y. J., & Sim, C. L. (2016). Relative Advantage and Competitive Pressure towards Implementation of E-commerce: Overview of Small and Medium Enterprises (SMEs). *Procedia Economics and Finance*, 35(October 2015), 434–443. [https://doi.org/10.1016/s2212-5671\(16\)00054-x](https://doi.org/10.1016/s2212-5671(16)00054-x)
- Singh, R. K., Garg, S. K., & Deshmukh, S. G. (2010). The competitiveness of SMEs in a globalized economy: Observations from China and India. *Management Research Review*, 33(1), 54–65. <https://doi.org/10.1108/01409171011011562>
- Syriopoulos, K. (2020). the Impact of Covid-19 on Entrepreneurship and Smes. *Journal of the International Academy for Case Studies*, 26(2), 1–2. <https://autorpa.yzu.edu.tw/login?url=https://www.proquest.com/docview/2419452454?accountid=15184%0Ahttp://pqdd.sinica.edu.tw/twdaoapp/servlet/advanced?query=>
- Tan, K. S., Eze, U. C., & Chong, S. C. (2009). Effects of industry type on ICT adoption among malaysian SMEs. *Creating Global Economies through Innovation and Knowledge Management Theory and Practice - Proceedings of the 12th International Business Information Management Association Conference, IBIMA 2009*, 1–3(January), 81–90. <https://doi.org/10.5171/2012.113797>
- Tyler, B., Lahneman, B., Beukel, K., Cerrato, D., Minciullo, M., Spielmann, N., & Discua Cruz, A. (2020). SME Managers' Perceptions of Competitive Pressure and the Adoption of Environmental Practices in Fragmented Industries: A Multi-Country Study in the Wine Industry. *Organization and Environment*, 33(3), 437–463. <https://doi.org/10.1177/1086026618803720>
- Ulas, D. (2019). Digital Transformation Process and SMEs. *Procedia Computer Science*, 158, 662–671. <https://doi.org/10.1016/j.procs.2019.09.101>

- Vale, L., Silcock, J., & Rawles, J. (1997). An economic evaluation of thrombolysis in a remote rural community. *British Medical Journal*, 314(7080), 570–572. <https://doi.org/10.1136/bmj.314.7080.570>
- Vershinina, N., Barrett, R., & McHardy, P. (2017). Logics and rationalisations underpinning entrepreneurial decision-making. *Journal of Small Business and Enterprise Development*, 24(1), 158–175. <https://doi.org/10.1108/JSBED-06-2016-0092>
- Vitale, J. (2020). Understanding the Impact of COVID-19 Automotive Sector. Deloitte. 1–2.
- Wong, L. W., Leong, L. Y., Hew, J. J., Tan, G. W. H., & Ooi, K. B. (2020). Time to seize the digital evolution: Adoption of blockchain in operations and supply chain management among Malaysian SMEs. *International Journal of Information Management*, 52(June), 1–19. <https://doi.org/10.1016/j.ijinfomgt.2019.08.005>
- Yin, L. E. E. Y. A. N. (2020). Lee yan yin (17ukm06743) master of philosophy. March.
- Zhao, Fang; Collier, A. (2017). Digital Entrepreneurship: Research and Practice (PDF Download Available). 9th Annual Conference of the EuroMed Academy of Business, September, 2173–2182. [https://www.researchgate.net/publication/309242001\\_Digital\\_Enterpreneurship\\_Research\\_and\\_Practice](https://www.researchgate.net/publication/309242001_Digital_Enterpreneurship_Research_and_Practice)
- Zucchini, L., & Kretschmer, T. (2012). Competitive Pressure: Competitive Dynamics as Reactions to Multiple Rivals. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.1919509>

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