

The Assessment of Digitalisation Among Malaysian Public Listed Companies in Consumer Product and Services Industries Using Business Process Management in the Pre- and Post-COVID-19 Situations

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Abstract

The adverse impacts of COVID-19 towards the performance of the business sector have forced companies around the globe to realise the importance of digitalisation in business strategic planning. Subsequently, sustaining bottom-line has become a major driving factor for companies to integrate digitalisation into business operations in addressing and overcoming negative effects of COVID-19 especially on key financial matters such as company's sales and expenses. To date, there is a dearth of studies that measure to what extent consumer product and service companies have applied digitalisation. Therefore, using a content analysis of selected companies' disclosures in their annual reports, this present study aimed to assess how much Malaysian public listed companies from consumer product and service sectors have embraced digitalisation. The assessment of those disclosures was done using the Business Process Management (BPM) Model involving two dimensions: ordinary and dynamic capabilities. The findings suggest that the application of digitalisation was much higher after the COVID-19 pandemic. The present study is crucial and relevant as it does not only substantiate existing literature related to digitalisation, but it also provides the latest insights and evidence of the digitalisation activities among consumer product and service companies in Malaysia. This study also signifies the importance of digitalisation to address the impacts of disruptions to the global economy.

Keywords: Digitalisation, Business Process Management, Ordinary Capabilities, Dynamic Capabilities, Annual Report

Introduction

In the post COVID-19 era, digitalisation has undoubtedly become a major driving force for company sustainability for all industries, including consumer product and service industries (Arif & Ta, 2022; Essebo, 2022; Lowe, 2022). In relation to this, the COVID-19

pandemic influx in late 2019 had impacted people's daily life and world's economy, a situation which has never been seen before (WHO, 2020). Additionally, disruption in the global supply chain has resulted in a decrease in business operations and created global alarm towards companies around the world. Besides, the pandemic has clearly exuded a negative impact towards business and resulted in massive losses due to declining business activities (Fairlie & Fossen, 2022; Kokeny et al., 2022; McKibbin & Fernando, 2020). Historically, customer spending behaviour is found to be adversely affected by pandemics thus the transformation of business operations are much needed to sustain businesses in the pandemic period (Sharma et al., 2022; Meyer et al., 2020; Martens & Zscheischler, 2022). Due to that, companies need to change their operations and take drastic actions to cope with those changes to thrive and sustain.

In Malaysia, companies have reported significant declines in sales during the COVID-19 pandemic. The execution of Movement Control Order (or known as MCO) during the COVID-19 by the Malaysian government due to the outbreak in March 2020 has forced Malaysian companies to shut down or minimise their business activities and to execute big employee's layoff. Furthermore, almost 40% of companies in Malaysia, including consumer products and services, were expected to cease operations if the MCO was prolonged for more than six months, as predicted by Malaysian Global Innovation and Creativity Centre (MaGIC) (Ertimi et al., 2022; Khalid, 2021).

The COVID-19 strike towards the world economic supply chain has made many companies' management realise the importance of transforming their business operation model. Companies that have applied and integrated digitalisation in the business operations have shown positive impacts towards survival during difficult times. Digitalisation has been identified as one of the key factors that gives a positive financial impact on a company's growth, performance, and profitability (Tuselim & Yaacob, 2022; Neligan et al., 2022; Wu et al., 2003; Eitrem & Oberg, 2018). The importance of digitalisation in business operations was drawn into attention earlier in 1996 due to significant growth in technology companies during that time (Williams, 2019). The rapid growth of companies related to technology has been a major contributing factor to other companies in creating or adopting digitalisation in business operations. The success and sustainability of companies such as Amazon and Alphabet have influenced many other companies to adopt or introduce digitalisation in business operations as early as year 2000 (Schwartz & Moon, 2000) and this is supported by a number of latest studies (Hannila et al., 2022; Wu et al., 2003).

From the Malaysian perspective, the digital economy recorded an increase of 9% over the years from 2016 before the COVID-19 pandemic. The trend is expected to increase up to 20% annually in 2020 and the major contribution comes from e-commerce mainly on online shopping platforms (Westerman et al., 2020). However, Malaysian companies are still lacking on the application of digitalisation in their business operations. A study on 28 top Malaysian companies by YinSern et al (2017), The, Esparen, Bobby and Chua in 2017 shows that Malaysian Digital Performance Index (DPI) was left way behind as compared to the United States by 1.7 to 2.5. Moreover, it was also found that most Malaysian companies use digitalisation mainly in analysing their internal performance, not in their business operations (YinSern et al., 2017).

In relation to that, a high amount of investment in developing digitalised infrastructure has become a major reason for Malaysian companies in delaying its digitalisation initiatives. The investment on digitalisation usually will be higher due to acquisition of software and

hardware including research and development division (Westerman et al., 2014). In addition to the cost barrier, major investments by companies are subject to the shareholders' approval. One of the strategic ways can be taken by management of the companies to get the shareholders' consent and support to go for digitalisation business operations is by providing up-to-date and relevant information relating to the financial benefits of digitalisation towards the company's sustainability in the future. In addition to disseminating such information during the company's annual meeting, management can disclose that information in their annual reports. Although furnishing that information is not yet being mandated, it can potentially enhance the relevance value of information to the shareholders and investors (Michelion et al., 2021). Thus, this study intended to assess the digitalisation level by Malaysian public listed consumer product and services companies. It contributes to the existing body of knowledge of both voluntary reporting and digitalisation of business operations in Malaysia.

This paper aim to analyse the following objectives

- Analyse the application of digitalization trend company involved in consumer product and services industries during pre and post Covid-19.
- Analyse the application of digitalization using Business Process Management

Literature Review

Since the World Health Organisation (WHO) declared COVID-19 as a pandemic in March 2020, there has been a major global health and economic crisis especially due to disturbance in the global supply chain (WHO, 2020). To control the COVID-19 outbreak, most of the countries have imposed movement control order (or lockdown) and which has adversely affected further disruption in the global supply chain (Yu et al., 2022; Panwar et al., 2022). The lockdown has halted business operations due to directive orders from the governments such as closure of businesses, restricted operation time, and changes in customer purchase behaviours. All of these factors have exposed the vulnerabilities of a company's sustainability during the pandemic period (Vugec et al., 2020). Moreover, many companies are going from bad to worse in their performance, thus some of them need to be shut down or minimise their operation to cope with the COVID-19 pandemic. As a result, many countries were brought down into recession and needed a steer from businesses and assistance from the governments to survive during the pandemic (OECD, 2020). The needs for speedy and corrective action were needed to close gaps that were being exposed by COVID-19 on global business chain during the pandemic (Golgeci et al., 2021; Duncan et al., 2021; Golan et al., 2020; Kaplan & Haenlein, 2020; Gereffi et al., 2021).

Although almost all companies around the world have been affected during COVID-19, companies that have already installed digitalisation in their operation are recognised as being less affected compared to companies operating without digitalisation. Previous studies have identified that digitalisation is one of the major factors that leads towards company's growth, profit, and performance over the years (Eitrem & Oberg, 2018; Alsufyani & QumerGill, 2022). Digitalisation can be defined as *"the sociotechnical process of leveraging digitised products or systems to develop new organisational procedures, business models or commercial offerings"* (Hendriarto, 2021). The changes of business operation model towards digitalisation will create new opportunities in generating revenue, new customers and ease business activities to cope with the current competitive business environment (Martens & Zscheischler, 2022; Zreiq et al., 2022; Wandaogo, 2022).

Digital economy in Malaysia has recorded positive value over the years and is expected to maintain an annual growth of 9% from 2010 and expected to record 20% growth in 2020 (Ibrahim et al., 2022). Although being hit by the COVID-19 pandemic in 2020, the Malaysian digital economy is expected to contribute around RM 110 billion in revenues and almost half of it comes from e-commerce alone (Westerman et al., 2020). Malaysian companies shall take advantages brought by digitalisation in business processes to create more opportunities and survivals during pandemic period. Previous studies have shown that digitalisation will make companies more creative in promoting, providing and delivering goods and services to maintain their sustainability during pandemics (Jedynak et al., 2021; Dwivedi et al., 2022; Chang et al., 2022).

Company annual reports are seen as one of the major tools for companies to disclose information on digitalisation in their business process. Although disclosures on digitalisation are not mandatorily required in annual reports, companies shall take actions to voluntarily disclose it to create more value added information to their respective shareholders and potential investors (Michelion et al., 2021). Sustainability and management reports usually chosen by the management to disclose information relating to digitalisation. Most of the disclosures are related to online sales and not to the business processes (Ibrahim et al., 2022). Previous studies have also focused on digitalisation effect on business models and how it changes business processes (Rachinger et al., 2019) and types of digitalisation disclosures being disclosed in sections of the annual reports (Michelion et al., 2021; Ibrahim et al., 2022).

Business Process Model (or BPM) is utilised to capture the area of digitalisation applied by companies selected in the present study. By using two BPM capabilities (ordinary and dynamic capabilities), the business process that is integrated with digitalisation in annual reports is evaluated. BPM capabilities can be viewed as a collection of activities and routines that will drive effectiveness and efficiency of business processes (Hulland, 2012). Ordinary capabilities are defined as the areas of digitalisation applied to enable business activities running smoothly and efficiently (Zollo & Winter, 2002). Dynamic capabilities refer to the change on digitalisation brought towards companies' operation to endure the changes brought by ongoing changes in the business environment (Teece et al., 2009; Teece et al., 1997). In the present study, both capabilities are used to examine the area of digitalisation being applied by Malaysian companies in consumer product and service industries.

Research Methodology and Method

This study used a qualitative research method to examine the disclosures on digitalisation being implemented by consumer product and services companies in Malaysia based on both ordinary and dynamic capabilities in Business Process Management (BPM). This method was adopted from existing studies on voluntary disclosures of digitalisation-related information (Ibrahim et al., 2022; Karna et al., 2016; Michelion et al., 2021). By adopting a qualitative research method, a content analysis was identified as the best method in extracting and analysing data from the annual reports. The information was then codified into several predefined categories.

In the present study, a purposive sampling was utilised to select the study sample which covered Malaysian public listed consumer product and services companies. The sample size was 30 and their selection was based on a set of predetermined criteria; companies from the chosen industry, with publications of three consecutive annual reports; from 2019 until 2021

and to be consistent, only companies which close their accounts on 31th December annually were selected (Ibrahim et al., 2022; Cappa et al., 2020).

Additionally, a standardised template was used in extracting and analysing data into the predetermined BPM codes. Content analysis was carried out to enhance the presence, meaning, and relationship between capabilities and digitalisation disclosures towards the results and findings. Besides, “digital” and “digitalisation” were the main key words used in analysing annual reports disclosures on digitalisation to determine the frequency and types of disclosures as per capability codes.

To ensure data consistency in measuring the BPM capabilities, the annual reports were coded based on Karna's et al (2016) and were modified to suit the need of the present study, as shown in Table 1.

Table 1

Business Process Management Capabilities

	BPM Capabilities	Capabilities Explanation on Annual Report
Ordinary Capabilities	Operation	Operation and marketing
	Enterprise Improvement	Logistic and after sales services
	Tools and Technology	Resource magnitude and innovations
Dynamic Capabilities	Process Strategy	Structural alignment and sustainability
	Project Execution	Organisational learning and information exchange
	Governance	Leadership quality and management commitment
	Human Capital	Staff improvement and human resources

From the analysis of the results, this study drew and interpreted the results to identify the frequency and types of disclosures of digitalisation based on BPM.

Discussion of Results and Findings

The results of the disclosures of digitalisation being applied by the companies based on the BPM capabilities in consumer product and services sectors listed in Malaysia are described in Table 2:

Table 2

*Disclosures of Digitalisation based on Ordinary Capabilities**Ordinary Capabilities*

	2019	2020	2021
Operations	58	103	152
Enterprises Improvement	50	138	196
Tools and Technology	69	133	122
Total	177	374	470

Table 2 shows the application of digitalisation based on Ordinary Capabilities under the BPM Capabilities disclosed in the annual reports. It was discovered that the application of digitalisation on Ordinary Capabilities showed an increasing trend from the year 2019 to 2021. Besides, the application of digitalisation had increased almost twice in the year 2020 from 2021 and it gave a clear indication that the Covid-19 pandemic was the main reason companies transformed their traditional businesses towards digitalisation. The analysis also shows that these companies were continuously increasing disclosures on digitalisation in their annual report after COVID-19 and this had further signalled the importance of digitalisation in the current business environment.

Based on Ordinary Capabilities, the study also discovered that the companies implemented digitalisation in Enterprise Improvement as the main segment to cope with COVID-19 and rapid changes brought by the global economy. Additionally, the companies were also found to embrace the importance of digitalisation in their operations such as by digitising their customer relationship program, sales and marketing products, and supply chain process. Besides, the operation section was also deemed important as Enterprise Improvement, as suggested by the study results over the years. To ease their operation section, the result shows that the companies used digital platforms such as Facebook, TikTok, and current online shopping providers (such as Lazada and Shoppe) to improve their sales, created new markets, and introduced their new products towards customers. The application of application in Operation keep increasing in the year 2021 too because the companies opted that digital platform as their priority in managing business operations such as marketing and production success. Lastly, in the Tools and Technology section, the application of digitalisation had doubled in 2020 from 2021 but had decreased in 2021. The increasing application of digitalisation in 2020 was found to be due to COVID-19 where companies needed to install or upgrade their software and hardware to cope with the changes brought by the COVID-19 era. Besides, the numbers of digitalisation in the Tools and Technology section decreased in 2021 was probably due to most of the companies having invested heavily in 2020. Meanwhile, in 2021, these companies only disclosed on upgrading their current digitalisation being applied in Tools and Technology in 2020.

Table 3

Disclosures of Digitalisation based on Dynamic Capabilities

	2019	2020	2021
Process Strategy	69	114	140
Project Execution	25	22	36
Governance	36	15	24
Human Capital	31	33	25
Total	161	184	225

Table 3 summarises the results related to Dynamic Capabilities. It is shown that these companies selected digitalisation as their core business strategy for sustainability and agility. Table 3 indicates that based on the analyses, the disclosures on the application of digitalization in annual reports, which are high on the Process Strategy section, showed an increase from the year 2019 to 2021. It was found that these companies incorporated digitalisation in the core business segment to stay competitive in the blooming digital business. Besides, the introduction of company's apps for engaging sales and product introduction was found to be the main strategy for companies to capture the current and future market and ease their operation in the future. Additionally, these companies also set up a Digitalization Department in their business organisation to improve their application of new technologies and created an innovative business culture. Moreover, company management teams also took an initiative to cope with the changes brought by digitalization in business whereby most of the directors of these companies underwent digitalization trainings, as reported in the Human Capital section, to be in-line with the application of digitalization in their business operations. Besides, most of the companies also reported the importance of managing and securing private data, including stakeholders and financial data, in the application of digitalization to business organisations in the Statement of Internal Control and Risk Management to ensure the safety of data. Furthermore, the introduction of the Cyber Security Department as well as investment in sound technology tools was also taken into account in order to help these companies to defer, mitigate, and solve any issue of data breach.

Table 4

No Disclosures on Digitalisation

	2019	2020	2021
No Disclosures	5	2	1

Table 4 shows the numbers of companies that did not disclose any application of digitalisation based on BPM Capabilities in their annual reports over the study period. It was discovered

that four out of five companies did not disclose digitalisation in 2019 as service provider companies. However, these numbers decreased in 2020 and 2021 as an effect of the COVID-19 pandemic. Additionally, it also showed that these companies immediately realised the importance of embracing digitalisation in their businesses to sustain themselves in the market. In the year 2021, only one of the companies selected in this study did not disclose any digitalisation area being applied from the year 2019 to 2021. Based on the analysis, service provider companies did not disclose much on digitalisation as compared to consumer product companies.

Table 5

Disclosure percentage on digitalisation based on Ordinary and Dynamic Capabilities

	2019	2020	2021
Ordinary Capabilities	42.82%	47.55%	58.63%
Dynamic Capabilities	57.18%	52.45%	41.37%
Total	100%	100%	100%

Table 5 shows the results for analysis of disclosures on Ordinary and Dynamic Capabilities in percentage. Disclosures of Ordinary Capabilities showed an increasing trend over the years. This is because these companies employed and invested more on digitalization in their business operations over the years as well as increased the disclosures on the application in their annual reports. The emergence of COVID-19 and the Industrial Revolution 4.0 (IR4.0) in 2020 have also become the major factors for these companies to use digitalization as their main actions to sustain in the future. Additionally, most of these companies chose to disclose the application of digitalization under Ordinary Capabilities in detail and this was highlighted in their annual reports over the years. As for Dynamic Capabilities, the disclosures showed a decreasing trend over the years. The decreasing disclosure over the year of Dynamic Capabilities as a business strategy from the year 2019 towards 2021 was found to be due to the application of a digitalization strategy in the previous year implemented and disclosed in Ordinary Capabilities in the next year. This shows that these companies would take digitalization as the focus to be applied in their business operations to be implemented over the years.

Conclusion and Discussion

In the present study, the importance of digitalization was discussed and identified as one of the factors that would contribute to a company's success and sustainability. Before the emergence of COVID-19, digitalization was viewed as part of business innovation and most of the firms made voluntary investment towards it (Zreiq et al., 2022; Lu & Wang, 2020). Subsequently, the sudden presence of the COVID-19 is seen as the major contributor for companies to take digitalization transformation in their operations due to massive loss suffered by businesses (WHO, 2020; McKibbin & Fernando, 2020). Previous studies have clearly shown the importance of digitalization in business operations, mainly to overcome the negative effects of COVID-19 (Chauhan et al., 2022; Ibrahim et al., 2022; Klerkx & Rose, 2020;

Kaplan & Haenlein, 2020; Franco et al., 2020). However, existing research on application of digitalization in Malaysia among Malaysian companies is rather limited (Ibrahim et al., 2022). Due to that, this study was conducted to analyse the application of digitalization among consumer product and service companies and services listed in Bursa Malaysia before, during, and post COVID-19 era (years 2019, 2020 and 2021) based on Business Process Management (BPM).

Based on the content analysis carried out on the selected companies' disclosures, this study discovered evidence which indicated higher digitalisation initiatives undertaken by Malaysian companies from the consumer and product service industries during the COVID-19 pandemic. Although the disclosures of digitalisation information in annual reports are voluntary, this study discovered that the disclosures on digitalization was in an increasing pattern over the years and some companies had even integrated digitalization as one of their business units and divisions in the organisations. The analysis of digitalisation based on Ordinary Capabilities revealed that most of the reported applications of digitalization were related to company's operation and improvement. Additionally, the use of digital selling platforms (such as Shopee and Lazada), the introduction of the companies' apps for customers and the use of social media platforms (such as Facebook, Tik Tok, and Instagram) seemed to be the main strategies for the consumer product and services companies to capture the market and improve their operations. Besides, this trend also indicated that these companies were well prepared to integrate digitalization in their organisations after the changes brought by COVID-19. In addition, based on the analysis of Dynamic Capabilities, the disclosure of application of digitalisation was also acknowledged as the main business strategy to be implemented in the future and key factors in maintaining business sustainability. Moreover, digitalisation was also substantially highlighted in the chairman statements and sustainability report in the annual reports and commitment by the management to keep investing in digitalisation signals the importance of digitalisation in business nowadays.

BPM capabilities have been used as a method in analysing digitalisation benefits and its being recognised as one of the factors contributing business value (Grisold et al., 2022; Kerpedzhiev et al., 2021). However, most of the studies using BPM in relation to digitalisation have been carried out using questionnaires (Antonucci et al., 2021). Thus, this present study represented few early attempts being done by using digitalisation information disclosed in the annual reports. Moreover, studies on the application of digitalisation using BPM in Malaysia are scarce hence this study would give an early indication of digitalisation amongst Malaysian companies.

Furthermore, even though disclosures of digitalisation have been voluntary in annual reports until now, this study discovered that it has been in practice way before Covid-19 in 2020. This study documents that companies realised the importance of digitalisation in business nowadays before the emergence of Covid-19. This suggests that companies are already embracing digitalisation in their business operations and taking it to another level with the emergence of COVID-19 in 2020. In addition, the increasing trend of disclosures of digitalisation applications also shows that consumer products and services companies in Malaysia are aligned with the business changes and Industrial Revolution 4.0.

This present study, like many others, is not without its limitations. Firstly, this study is limited due to the small size of the selected companies. Besides, the researchers carried out a manual approach in analysing annual reports and thirdly, BPM capabilities may not be

analysed based on detailed capabilities. Therefore, future studies may consider to involve a bigger sample size or use more details in BPM by including enhanced capabilities, instead of using Ordinary and Dynamic Capabilities only.

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