TECHNOLOGY FORESIGHT CAPABILITIES FOR SURVIVAL OF MICRO BUSINESS DURING POST COVID-19

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ABSTRACT - The coronavirus (COVID-19) outbreak is causing widespread concern and economic hardship for consumers, businesses, and communities across the globe. This caused significant financial losses to the business entrepreneurs especially minority-owned enterprises in the fashion industry. This circumstance has pushed foresight as a prominent concept for organizations operating in this current environment. This study aims to identify the level of technology foresight amongst business survival in local fashion retailers and also to determine the relationship between technology foresight towards business survival in the fashion retail industry during post-Covid-19. This research adopts a quantitative, descriptive, and correlation study. Data were collected through an online questionnaire, which involved 170 fashion retailers in Bangi, Selangor. A Spearman's Rho correlation analysis was used to test the hypotheses. The result shows that there is a significant relationship between industry dynamism, environmental scanning, and networking ties toward business survival. This study concludes that micro-business or fashion retail businesses should highlight the importance of technology foresight in their ability interprets environmental changes to assure the company's continued existence over the long term.

1.0   INTRODUCTION

According to the time series of SME Gross Domestic Product (GDP) and Malaysian GDP, SME GDP growth is commonly higher than Malaysian GDP growth (Department of Statistics Malaysia Official Portal, 2021). From this, it shows that SMEs' contribution is important to the economy in Malaysia. In early 2020, the world witnessed the emergence of a novel disease threat to businesses globally. Based on the COVID-19 business impact survey by International Trade Centre (ITC), comprising 4467 companies placed in 132 countries, it was reported that 55% of those who answered the survey said they were significantly affected by the pandemic and subsequent containment measures. Compared to 40% of larger companies, 2/3 of SMEs said the crisis had a significant impact on their operations. 1/5 indicates the risk of shutting down permanently (SME Insights 2019/20, 2020). It follows that the fashion industry has also been experiencing the effect of the pandemic. There was a prediction that the global fashion industry would be the hardest-hit industry which was forecasted to decline by 25–30% in 2020 (McKinsey, 2020). According to McKinsey (2020), even though 4% of profits increased in 2019, however, sales declined 93% in 2020. It means the industry will be in a weaker position in 2021. The year 2020 will undoubtedly go down in history as the worst year on record with nearly three-quarters of listed fashion companies reporting losses (McKinsey, 2020). Manufacturing (especially textile or fashion) is unable to perform without supply chains and they have to terminate or reduce production processes (Sarma et al., 2021).

Datuk Seri Tan Thian Poh, the president of the Federation of Malaysian Fashion, Textile, and Apparels (FMFTA), said that the industry players cannot afford another day of operational shutdowns (Solhi, 2021). FMFTA industries are hanging by a thread as many SME businesses have shut down or downsized their operations resulting in almost 15,000 job losses. In this uniquely severe global crisis, fast-changing and uncertain world, it is imperative for retailers to evolve to avoid becoming obsolete (Mende & Noble, 2019). The Sustainable Textile of Asian Regions (STAR) network has also emphasized fashion retailers to consider the role of long-term operational strategies for business continuity and supply chain unity during and after the COVID-19 crisis (Sarma et al., 2021). This circumstance has pushed foresight as a prominent concept for organizations operating in this current environment (Paliokaitė et al., 2014). According to Pietrobelli and Puppato, (2016), technology foresight (TF) is a systematic approach that looks into the long-term future of science, technology, and innovation. Previous studies have also indicated that foresight practices and capabilities have a favorable impact on firm performance (Paliokaitė et al., 2014; Rohrbeck, 2012).

Technology foresight has been widely used as a decision-making tool in the context of government innovation policies and large-scale corporate investment decisions (Apreda et al., 2016). Moreover, the previous study has been looking at technology foresight in the virtual learning environment (Shanmugam et al., 2019), automotive supplier industry (Förster, 2015), and shipbuilding industry (Vishnevskiy et al., 2017) and has been applied widely in the diverse fields.

Nevertheless, foresight research carried out by small companies is rare (Kononiuk & Glińska, 2015). According to Kononiuk and Glińska, (2015), foresight research done by many businesses does not include small and medium-sized enterprises (SMEs) despite their significant contributions to employment, value creation, and innovation. There are no known studies that have been conducted on the fashion retail industry as well (McKinsey, 2020), sectors that have been most affected by the shock (Kavindi et al., 2021). Thus, this study identifies the level of technology foresight capabilities amongst fashion retailers and investigates the relationship between technology foresight toward the fashion retailer industry during post-Covid-19. Based on the statement above, this study will identify the relationship between technology foresight toward business survival in the fashion retail industry during post-Covid-19.

2.0   LITERATURE REVIEW

2.1   Business Continuity Strategy

Research done by Fabeil, Pazim, and Langgat, (2020a) indicates that micro-enterprises do not have a formal approach to dealing with a crisis. Nonetheless, entrepreneurs showed their ability to survive through the plethora of business continuity and recovery measures, particularly in terms of product delivery and marketing. This finding is align with McCarthy (2003), who claimed that entrepreneurs that have faced management challenges are more likely to make a sensible decision when confront with an unpredictable event in the future.

Another study conducted by Sheng and Saide (2021) highlights that companies should recognize that the exploitative of knowledge have various impact and are integrated differently into a supply chain's sustainability. The results also highlighted two roles for mediation, whereby revolutionary knowledge exploration and big data analytics through virtual enterprise are critical approaches for supply chain survival.

Besides, another related study was conducted by Acciarini and Boccardelli (2021) in Rome, Italy. The objective of the research was to discuss and reflect on the ability of specific companies to increase their level of organizational resilience when unexpected events happen. In that article, Iborra, Safon, and Dolz (2020), stated that, in order for the company to be more resilient, they need to be more strategic and explore the role of organizational ambidexterity. Organizational differences between short-term and long-term decisions will help the company to identify potential opportunities in a crisis. Based on the findings, the development of digital skills would be useful in navigating difficult situations and getting effective responses to crises. There is a significant relationship between digital solutions investments and positive strategic responses to unforeseen circumstances linked to a higher level of organizational resilience.

2.2   Technology Foresight

According to research conducted by Rahman, Yaacob, and Mat Radzi (2016), technology is a key factor in the development of small and medium-sized enterprises (SMEs). The researcher claimed SMEs that embrace innovation achieve growth and sustainability more than those that do not (Varis & Littunen, 2010). In fact, the world had witnessed how technology enables firms to raise market share and seek out new opportunities for growth. In this study, online marketing, computerized record, and social networking are all classified as technological innovations. Theoretically, these are the main variables that were found to be significant to SME survival.

On the other hand, research done by Mao, Koide, Brem, and Akenji (2020) looked at how new technology affects society from many different angles. This paper applied a qualitative survey of 137 experts and analyzed using a combination of qualitative and quantitative methods. Based on the findings, the social consequences of technology foresight could be a driver for social change to discuss whether specific technologies should be adopted, reversed, or regulated with respect to their expansion in society. Moreover, changes in one area of society such as employment as a result of technological innovation will lead to changes in other parts of society (i.e. deepening inequality) and daily living. From a market analysis point of view, cost-cutting also is one of the main reasons businesses adopt the technology.

Besides that, research done by Li, Chen, and Kou (2017) on technology foresight in China found that government practices, academic studies, and policy applications related to technology foresight in China are associated with expert interviews, bibliometrics, and desk research methods. Based on the findings, technology foresight activities in the country allow stakeholders to consult with one another, fostering a culture of technology foresight. Additionally, numerous issues associated with developing and planning with science, technology, and innovation can be resolved when comprehensive approaches to technology foresight are being used, such as bibliometric, technology roadmap, scenario analysis and large-scale Delphi survey.

2.3   Hypotheses Development

The term "industry dynamism" refers to the instability of the environment and the extent to which changes in the industry affect the organization (Dess & Beard, 1984). Dynamic industries are characterized by dramatic changes in technology and management practices, as well as short product life cycles and rapid moves of market participants that contribute to a high level of uncertainty (Pérez-Luño et al., 2011). According to Lumpkin and Dess (2001), the dynamism of the business environment has a direct impact on firm performance. Firms in dynamic industries may be more likely to improve their product and access new markets. Dynamic and challenging business environments also encourage

companies to be more creative and aggressive in their approach. Covin and Slevin (1989) argue that such volatile circumstances are beneficial and suited for SMEs due to their entrepreneurial orientation and behavior. Porter (1985) stated factors such as environmental dynamism and hostility influence firms to carry out strategic innovations and radical adaptation. Thus, it can be viewed that a dynamic business environment will influence organizational survival and growth:

H1: Industry dynamism has a positive impact on business survival

One of the most significant foresight practices and capabilities is environmental scanning (Vecchiato, 2015). Environmental scanning is the process of gathering information and involves exposure to and perception of information (Hough & White, 2004). According to some researchers, environmental scanning has been linked to desirable organizational outcomes including strategic agility, adaptive learning, innovation, and ambidexterity (Bodwell & Chermack, 2010; Sarpong et al., 2013). An effective environmental scanning will indeed assist companies in better alignment with constantly changing external factors and thus enhance their overall performance (Wong & Hung, 2012). Therefore, researchers adopting this view argue that systematically probing external forces will strengthen the resilience of businesses.

H2: Environmental scanning has a positive impact on business survival

Forming network ties allow businesses to share information with employees, suppliers, customers, shareholders, politicians, and other relevant business parties (Wu, 2011). Scholars have argued that SMEs face significant constraints that hinder their opportunity to apply a wide range of foresight practices or techniques, hence relying primarily on developing network ties to understand and adapt to changes (Nyuur, 2015). Additionally, SMEs are found to have a hard time implementing complex foresight approaches and instead rely on networking and other simple foresight techniques including desk research and brainstorming (Johnston et al., 2008).

H3: Networking ties have a positive impact on business survival

According to Paliokaitė, Pačėsa, and Sarpong (2014), planning and visioning require the use of organizational resources and skills to envision and create goals that support corporate image in the long term. Planning and visioning help to eliminate randomness and provide guidance to make the best decisions and take appropriate action (Amsteus, 2011). Researchers have linked foresight activities like planning and visioning with good performance (Hideg, Nováky, & Alács, 2014). Based on the abovementioned statements, it can be hypothesized that:

H4: Planning and visioning have a positive impact on business survival

This foresight capability involves interpreting data gathered from the external environment to discern probable future events and possible alternative future routes (Paliokaitė et al., 2014). It entails studying current circumstances and carrying the analysis forward in time by assessing courses of action in the future a degree ahead of time (Amsteus, 2011). During this analyzing process, techniques or methods usually used include trend analysis, scenario analysis, and simulations (Jannek & Burmeister, 2007). Analysis techniques are essential to make reasonable and informed decisions concerning current and future behaviors. Researchers claimed that a thorough analysis of important external data will improve SMEs' actions and decision-making in the future. It would also help businesses sustain themselves and be far readier to confront any challenges.

H5: Analyzing has a positive impact on business survival

3.0 METHODOLOGY

To test the relationship between technology foresight capabilities consisting of industry dynamism, environmental scanning, networking ties, planning, visioning, and analyzing with the business survival, this paper conducted a quantitative descriptive and correlation analysis study. For sampling calculation in this study, the number of sample sizes was calculated using the G-Power software statistical program with a power of 0.80, a p-value of less than 0.05, and an expected medium effect size of 0.15. This 80% power is the bare minimum required for social science studies (Gefen et al., 2011). Based on power analysis results, the minimum sample size is 92 respondents. This finding showed that 92 respondents were sufficient to demonstrate the study's power of the effect size. However, this study successfully collects 170 respondents, which is more than the minimum number of samples required. The capabilities of foresight technology among micro-business were very crucial during this COVID-19 pandemic. Therefore, the respondents were from micro businesses retailers in the fashion industry located in Bangi, Selangor.

This study employed non-probability convenience sampling. This is due to the constraint in getting the actual numbers of the total population of fashion retailers. According to Etikan et al., (2015), biologists often use convenience sampling in fieldwork because it is easier like walking on a road and stopping occasionally to record numbers. Similar to this study, the researcher focuses on one area which is Bangi, one of the popular fashion retailer areas in Malaysia. Therefore, the same environment was involved in this research where they only focus on retailers in that area. All the variables were investigated using 5-point Likert scales and questionnaires were adopted from Paliokaite and Pačesa (2015).

4.0   RESULTS

4.1   Demographic Analysis

Table 1 below shows the demographic results obtained from data collection. It can be concluded that 52% of respondents were female, 29.4% were between ages 41 to 51 years old, 47.6% have been operated between 5 to 10 years, and the majority (82.4%) have one to five employees.

Table 1. Demographic results

Demographic	Description	Frequency	Percentage (%)
Gender	Male	81	47.6
	Female	89	52.4
Age	20-30 years old	34	20
	31-40 years old	36	21.2
	41-50 years old	50	29.4
	51-60 years old	38	22.4
	61 and above	12	7.1
Year of Establishment	Less than 5 years	72	42.4
	5-10 years	81	47.6
	11-15 years	16	9.4
	More than 15 years	1	0.6
Number of Employees	1-5 employees	140	82.4
	6-10 employees	27	15.9
	More than 10 employees	3	1.8

4.2   Reliability Analysis

The total of measured items is equivalent to 28 items, of which three items for industry dynamism, eight items for environmental scanning, two items for networking ties, four items for planning and visioning, five items for analyzing, and six items for business survival. The Cronbach's Alpha for business survival and industrial dynamism are 0.812 and 0.851 respectively. Therefore, these two variables' values are considered good meanwhile other variables, the result shows moderate but acceptable reliability with values ranging from 0.60 to 0.80. Table 2 shows the summary of the reliability test results.

Table 2. Reliability test results

Variables	Cronbach's Alpha (a)	N of Items
Industry Dynamism	.851	3
Environmental Scanning	.672	8
Networking Ties	.734	2
Planning and Visioning	.605	5
Analyzing	.655	5
Business Survival	.812	6
Overall variables	.765	29

4.3   Descriptive Analysis

The mean and standard deviation of the items will be included in this section to show the results of the descriptive analysis for deeper insight. The mean value indicates the average response for each item (Krejcie & Morgan, 1970) while the standard deviation value shows the dispersion of the data around the average value. Based on Table 3, the mean score for the items of the level of industry dynamism is considered high with an average mean value of 4.53, the average standard deviation values for these variable items are between 0.51 which interprets the data were not overly dispersed around the mean score. Next, the average mean for items of environmental scanning is moderate which is 3.20. Meanwhile, the standard deviation of average environmental scanning items shows a distribution of 0.69. Besides, the items for the level of networking ties show average mean scores of 4.06 which indicate a high mean score and the standard deviation values for these variable items are between 0.43 considering the data points were nearby the mean. Moreover, the mean score for the items of the level of planning and visioning is considered high with an average mean value of 4.28, the average standard deviation values for these variable items are 0.51, which defined that the distribution of data points was placed around the mean. The items for the level of analysis show an average mean score was 3.08 which indicates a moderate mean score, and the average standard deviation value for these variables is 0.50, defining that the distribution

of the data points was not concentrated around the mean. Lastly, the average mean range for items of the level of business survival is also high which is 4.03. The average standard deviation of business survival items shows the data were clustered close to the mean which is 0.50.

Table 3. Descriptive analysis results

Variables	Average Mean	Average Standard Deviations
Business Survival	4.03	0.61
Industry Dynamism	4.53	0.51
Environmental Scanning	3.20	0.69
Networking Ties	4.06	0.43
Planning and Visioning	4.28	0.51
Analyzing	3.08	0.50

4.4   Significance Statistics Test

Based on the result in Table 4, Spearman's Rho correlation coefficient between industry dynamism and business survival is 0.219 with a significant value, p=0.04. Thus, there was a weak positive correlation between these variables. The results reported that the significant value of this correlation was p=0.033 which is $p<0.05$. The correlation coefficient result shows a very weak positive relationship exists between environmental scanning and business survival. In addition, Spearman's Rho correlation coefficient between networking ties and business survival is 0.400 with a significant value. This indicates that there was a moderate positive relationship between these two variables.

The result also identifies the relationship between planning and visioning, and business survival. Spearman's Rho correlation coefficient shows no significant relationship. For the next hypothesis, the value correlation coefficient is 0.118 which indicates that there is no significant relationship between these two variables. This hypothesis is rejected in this study as a significant value of p=0.125 which is p> 0.05. Thus, there is no significant correlation between analyzing and business survival.

Table 4. Spearman's Rho correlation analysis

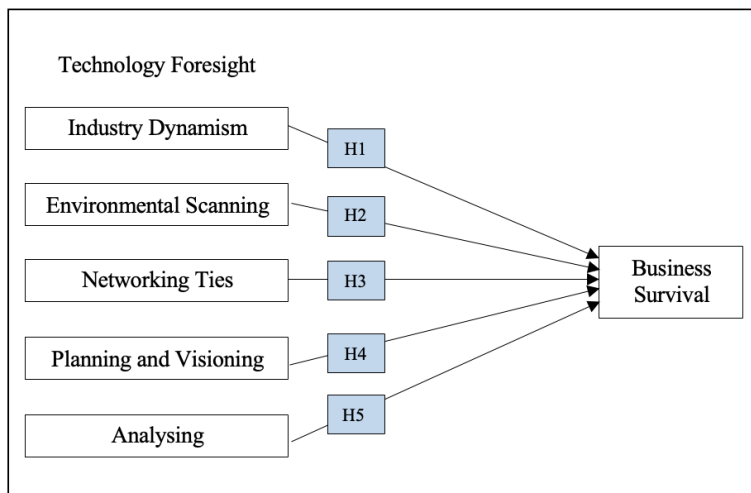| Hypotheses	Relationship	r-value	Decision
H1	Industry Dynamism → Business Survival	0.219	Supported
H2	Environmental Scanning → Business Survival	0.163	Supported
H3	Networking Ties → Business Survival	0.400	Supported
H4	Planning and Visioning → Business Survival	0.087	Not Supported
H5	Analyzing → Business Survival	0.118	Not Supported

Figure 1. Research framework

5.0 DISCUSSION

5.1 Industry Dynamism

The influence of industry dynamism on business survival was found to be significant and has a weak positive correlation (correlation coefficient=0.219, p=0.04). In this research, industry dynamism refers to the instability of the surrounding environment and the extent to which changes in the industry affect the organization. According to the data gathered by the survey questionnaire, many respondents strongly agree with the fact that technological advancement has created numerous opportunities in the fashion sector. The introduction of the internet, advanced technologies and regular contact with social, political, economic and technological factors have resulted in frequent rapid changes and actual unpredictability within the business environment. This finding is in line with Zhu and Xie (2022), which indicates that higher industry dynamism may minimize the likelihood of businesses failing. This emphasizes the need for industry dynamism for firm survival and growth in the post-pandemic recovery.

5.2 Environmental Scanning

The second hypothesis (H2) concerns whether environmental scanning influence business survival. The findings show there is a significant effect between environmental scanning towards business survival (correlation coefficient=0.163, $p<0.05$) which supports H2. The findings revealed that businesses should pay greater attention to environmental scanning such as scanning in all areas of technological, political, customer, or markets and industries that they are not currently involved in. It revealed that the level of significance in the tested hypothesis is less than 0.05 which implied that there is a relationship between environmental scanning and business survival. Several researches have shown that environmental scanning improves the performance of an organization and thus survival. Specifically, a study by Babatunde and Adebisi (2012) empirically supports the claim that environmental scanning is important for an organization to survive. It shows that changes in business performance are responsible for changes in environmental scanning. To put it another way, conducting strategic environmental scanning would ultimately result in improved organizational performance as well as increased possibilities of surviving in the market. Therefore, businesses have to keep abreast of everything about the environment to sustain the environmental hardship and allow the organization to survive.

5.3 Networking Ties

The researcher accepted the above hypothesis due to the moderate positive relationship between networking ties and business survival. Based on the result of the correlation test denoted, it achieved the highest coefficient value in this study (correlation coefficient=0.400, p=0.000). According to the data gathered by the survey questionnaire, the majority of the respondents agreed with the statement 'employees of my company work jointly with customers to develop solutions and 'employees of my company work jointly with suppliers to develop solutions. Good supplier relationships allow business owners to acquire high-quality products, reliable services, and on-time delivery. Meanwhile, good customer relationships enable businesses to access the information and knowledge resources that are contained in the customer network, allowing them to be more innovative in their service offerings. These ties could give the required resources for businesses which in turn will lead to high sales and survival in the long term. These results were consistent with the results of previous studies by Neneh (2018), in which perceived networking ties were proven to affect business survival effectively. According to Borg and Gratzer (2013), a small business cannot succeed if it does not connect with other players in the market. At one level of the company hierarchy, businesses are too small and may not have enough resources to grow. Hence, a micro business must seek resources and assistance from 'outsiders' or external actors.

5.4 Planning and Visioning

The fourth hypothesis (H4) concerns whether planning and visioning influence business survival. The findings show no significant effect between planning and visioning toward business survival (correlation coefficient=0.087, p>0.05), which does not support H4. According to some experts, business planning does not have a direct impact on business performance but rather allows the company to grow in a way that improves its chances of success (Soriano & Castrogiovanni, 2012). Also, it was found that companies without a business plan were more likely to fail (or survive) than businesses with a simple business plan (Zinger & LeBrasseur, 2003). The lack of a significant association between survival and planning in the current study tends to support Mintzberg's (1994) perspective that the planning process should be minimized in the organization as it seems like a potential barrier to creativity. This is because creativity opens the mind. Making plans particularly can prevent creative thinking or alter the decision-making process anytime an idea arises. This will limit the potential of the business to innovate. As a result, there are few opportunities to survive and compete in a crowded market.

5.6 Analyzing

The analysis revealed no association between analyzing and business survival (correlation coefficient = 0.118, p = 0.125). This hypothesis is therefore rejected. The researcher found a very weak positive correlation was found due to most respondents strongly disagreeing with techniques such as scenarios or econometrics being used during analyzing process. Several methods such as balanced scorecard appreciation inquiry or road mapping also were not applied by the business owner. This may be due to the type and size of an organization that is applied in this current research. However, this contradicts prior research by Nyuur et al. (2015) who found that analyzing has a positive impact on organizations' products. It would help them respond quickly and strategically to changing market needs and adapt their products and

services. The findings also reveal that small and medium-sized enterprises have large scenario planning demands, but only participate in simple foresight activities including networking and brainstorming. A small company is unable to apply scenario planning in its purest form as successfully as a huge company. This technique looks at current trends to help figure out what will happen in the future. An effective analysis could enhance the quality of decision-making in the future and support businesses even in a turbulent environment.

6.0   CONCLUSION

In conclusion, the study emphasizes the significance of technology foresight. It seems that technology foresight has a greater impact on business survival. Moreover, there were five independent variables encompassed which are industry dynamism, environmental scanning, networking ties, planning, visioning, and analyzing. The dependent variable in this study is business survival. Both of the study's objectives were met. While the correlation test showed that three out of five hypotheses (H1, H2, H3) have a significant positive relationship between independent variables and dependent variable, H4 and H5 have no association between the independent and dependent variables. Discussions and conclusions were made on the research objective in the final part of the report. Limitations that restricted the result of this study to be generalized were also indicated. Last but not least, suggestions for future research were made with the intention of enhancing the research effort in a number of ways.

7.0   REFERENCES

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