LEVERAGING RESOURCES AND CAPABILITIES TO ENHANCE ORGANIZATIONAL RESILIENCE IN THE MALAYSIAN MANUFACTURING SECTOR

SHELA VENGIRASAMY

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LEVERAGING RESOURCES AND CAPABILITIES TO ENHANCE ORGANIZATIONAL RESILIENCE IN THE MALAYSIAN MANUFACTURING SECTOR

by

SHELA VENGIRASAMY

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LIST OF ABBREVIATIONS

AVE	Average Variance Extracted
BCa	Bias Corrected and Accelerated
CA	Cronbach Alpha
CB-SEM	Composite based-Structural Equation Modelling
CR	Composite Reliability
FIMIX-PLS	Finite Mixture-Partial Least Square
GDP	Gross Domestic Product
GLCs	Government-linked Companies
GNP	Gross National Product
HROs	High Reliability Organizations
HTMT	Heterotrait-Monotrait
IMP 1	Industrial Master Plan 1
IMP 2	Industrial Master Plan 2
IMP 3	Industrial Master Plan 3
IPMA	Important-Performance-Map-Analysis
IT	Information Technology
LL	Lower Limit
MAE	Mean Absolute Error
MAR	Missing at Random
MCAR	Missing Completely at Random
MITI	Ministry of International Trade & Industry
MNAR	Missing Not at Random
MNCs	Multi-national Corporations
PLS-POS	Partial Least Square-Prediction-oriented Segmentation
PLS-SEM	Partial Least Square-Structural Equation Modelling
RBV	Resource-based View
RMSE	Root Mean Square Error
SEM	Structural Equation Modelling
SMEs	Small and Medium Enterprises
SPSS	Statistical Package for the Social Sciences
UL	Upper Limit

VIF	Variance Inflation Factor

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MEMANFAATKAN SUMBER DAN KAPABILITI UNTUK MENINGKATKAN DAYA KETAHANAN ORGANISASI DI SEKTOR PEMBUATAN MALAYSIA

ABSTRAK

Industri pembuatan seringkali berhadapan dengan disrupsi yang memberi tekanan kepada kedua-dua majikan dan pekerja. Keadaan ini menjejaskan daya saing industri pembuatan yang merupakan salah satu penyumbang utama kepada KDNK and peluang pekerjaan. Justeru, kajian ini telah membangunkan model yang komprehensif, memaparkan sumber dan kapabiliti penting bagi meningkatkan daya ketahanan organisasi dan menguji model tersebut dalam konteks industri pembuatan di Malaysia. Model kajian yang melatarbelakangkan teori *Resource-based View* (*RBV*) ini diuji menggunakan kaedah *Partial Least Squares-Structural Equation Modelling* (*PLS-SEM*) ke atas 217 firma pembuatan di Malaysia. Hasil kajian menunjukkan tiga penemuan penting. Pertama, sumber dan kapabiliti strategik, termasuk ketersediaan sumber kewangan, modal insan, infrastruktur IT yang fleksibel serta kesedaran kolektif mempengaruhi daya ketahanan organisasi secara positif. Sebaliknya, kapabiliti penambahbaikan dan budaya pengurusan risiko tidak menunjukkan hubungan signifikan terhadap ketahanan organisasi. Kedua, kapabiliti penambahbaikan tidak memainkan peranan sebagai moderator dalam hubungan antara sumber dan daya ketahanan organisasi seperti yang dijangkakan. Ketiga, modal sosial dan kepimpinan transformasi mempengaruhi daya ketahanan organisasi secara tidak langsung melalui faktor perantara, iaitu kesedaran kolektif. Penemuan kajian ini memberi sumbangan kepada pengetahuan sedia ada dan turut memberi implikasi praktikal kepada para pengurus serta perangka polisi.

LEVERAGING RESOURCES AND CAPABILITIES TO ENHANCE ORGANIZATIONAL RESILIENCE IN THE MALAYSIAN MANUFACTURING SECTOR

ABSTRACT

The modern manufacturing industry is confronted with constant disruptions, resulting in severe distress to managers and employees alike. As a key contributor that accounts for a sizable portion of the world's GDP and employment, the industry is highly impacted from such regular disruptions that challenge its resilience. Thus, the present study develops a comprehensive theoretical model explicating key resources and capabilities of firms that can promote organizational resilience; and validates the model in the context of the Malaysian manufacturing sector. The research model builds on the theoretical foundation of Resource-based View (RBV) and empirically tested using Partial Least Squares-Structural Equation Modelling (PLS-SEM) on a sample of 217 manufacturing firms in Malaysia. The analysis yielded three salient findings. First, several strategic resources and capabilities including financial resources availability, human capital, IT infrastructure flexibility, and collective mindfulness positively influence organizational resilience. Conversely, improvisation capability and risk management culture do not show a significant effect on organizational resilience. Second, improvisation capability does not moderate the relationships between resources and organizational resilience as theorized. Third, social capital and transformational leadership indirectly influence organizational resilience through the mediating effect of collective mindfulness. These findings provide vital theoretical implications for the current body of knowledge of organizational resilience and practical implications for managers as well as policy makers.

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

In the current turbulent and hypercompetitive environment, organizations are confronted with multiple unexpected events that threaten their performance and survival (Duchek, 2020a; Hosseini et al., 2019; Pedersen et al., 2020; Altay & Pal, 2023; Su & Junge, 2023). These events, or better known as disruptions may arise in various forms, such as financial crises, market and technological changes, political unrest, natural hazards, pandemics and diseases, information technology and data security violations, equipment failures as well as human errors (Annarelli & Nonino, 2016; Burnard et al., 2018; Pedersen et al., 2020; Ritter & Pedersen, 2020; Munir et al., 2022). Disruptions vary and are unpredictable in nature; and their types and scales may impose short-term or long-term effects on an organization (Hosseini et al., 2019; Lee et al., 2020; Aldrighetti et al., 2021). They often create high impact situations that require organizations to be resilient to survive and foster future success (Duchek, 2020a; Aldrighetti et al., 2021).

The notion of resilience in organization explains “the inherent characteristics of organization that include abilities to respond quickly, recover fast or develop unusual ways of doing business under duress” (Linnenluecke, 2017, p. 4). It depends on the capacity of the organization to utilize its internal resources and capabilities to manage uncertainties and challenges, which is perceived as an important attribute of organizational competitiveness (Ployhart, 2021; Dahmen, 2023). In brief, organizational resilience refers to the persistence in maintaining positive adjustment

during challenging situations to emerge more invigorate and resourceful (Vogus & Sutcliffe, 2007).

Organizational resilience is a growing concept in management studies and organizations around the world are increasingly realizing its significance with the emergence of continuous stream of disruptions in their everyday life (Andersson et al., 2019; Su & Junge, 2023). For example, the 2001 World Trade Center attack, the 2004 Indonesia tsunami, the 2008 world economic crisis, the 2011 Thailand flood, Japan earthquake and tsunami, and the recent Covid-19 pandemic as well as the geopolitical tension between Russia and the Ukraine are among the high impact disruptions that have globally driven organizations' attention towards resilience (Ngoc Su et al., 2021; Munir et al., 2022; Su & Junge, 2023). Disruptions generally impose changes on business environment; and this calls for adaptability and positive adjustment of the organizations to remain relevant and successful (Annarelli & Nonino, 2016; Barasa et al., 2018; Pedersen et al., 2020).

Disruptions caused by the Covid-19 pandemic is one of the most palpable examples to explain this. The Covid-19 pandemic has caused a major downturn and shift in the way of living and doing business. In a lightning speed, online meetings, virtual teachings, webinars and virtual conferences have become new norms in the business world (Pedersen et al., 2020). Lockdowns, social distancing, and movement restrictions following the pandemic have created riotous conditions globally; whereby those organizations that are unable to change, capsized in the hasty environment. In such condition, only those organizations that managed to adapt to the change, particularly, via digitalization and automation capabilities and own multiple resources and slacks, such as sufficient financial reserves, good access to raw materials, creative

employees and leaders were able to survive and thrive during the pandemic (Ernst & Young, 2020).

According to Conz & Magnani (2020, p. 400), the increasing market uncertainty and environmental disasters have shifted the strategic goals of organizations from the "quest for profit" to a "quest for resilience". This mirrors a world-wide shift of focus of organizations towards resilience and Malaysia is not exceptional. Although Malaysia is strategically located outside of the pacific ring of fire, it is still exposed to disasters, such as unexpected floods, storms, and landslides due to its climate and weather. Based on the Ministry of International Trade and Industry (MITI), the 2014 flood that hit the state of Kelantan had impacted 13,337 SMEs and only less than 10% of the SMEs were able to resume their operation within six months (Auzzir, 2018).

Similarly, another incident of flood in Penang had impacted 100 out of the 400 manufacturing firms with over RM 50 million in damages (Jun, 2017). According to the Malaysian Employers Federation (MEF) Executive Director, the huge challenges confronted by these firms were mainly due to the insufficient financial resources and back up reserves to buffer emergency situations as the firms were only operating at breakeven points (Jun, 2017). Lately, such unexpected floods occur too often in Malaysia, causing more vulnerabilities to both the people and organizations. Further to that, the Covid-19 pandemic had imposed an adverse impact that resulted in closure of over 13,323 companies in Malaysia from January to May 2020 (Department of Statistic Malaysia [DOSM], 2020) and this number continued to surge in 2021 and 2022 (Rahm, 2021; Miwil, 2023).

This reflects a poor state of resilience among Malaysian organizations and a pressing urgency to restore their capabilities in handling challenges to ensure continued performance. In this respect, the manufacturing sector, particularly deserves a major attention as it has been the backbone of Malaysian economic growth since 1980s (Hee et al., 2019). The performance of this sector is extremely vital due to its contribution to the income of households, continuation of job opportunities and supply chain stability in the economy (Auzzir, 2018; Shela et al., 2023). The sector offers over 2.34 million employment opportunities throughout the nation (Statista, 2022). Besides that, the manufacturing sector is the second largest contributor to the country's GDP with contributions as indicated in Figure 1.1 (DOSM, 2021b; Statista, 2022).

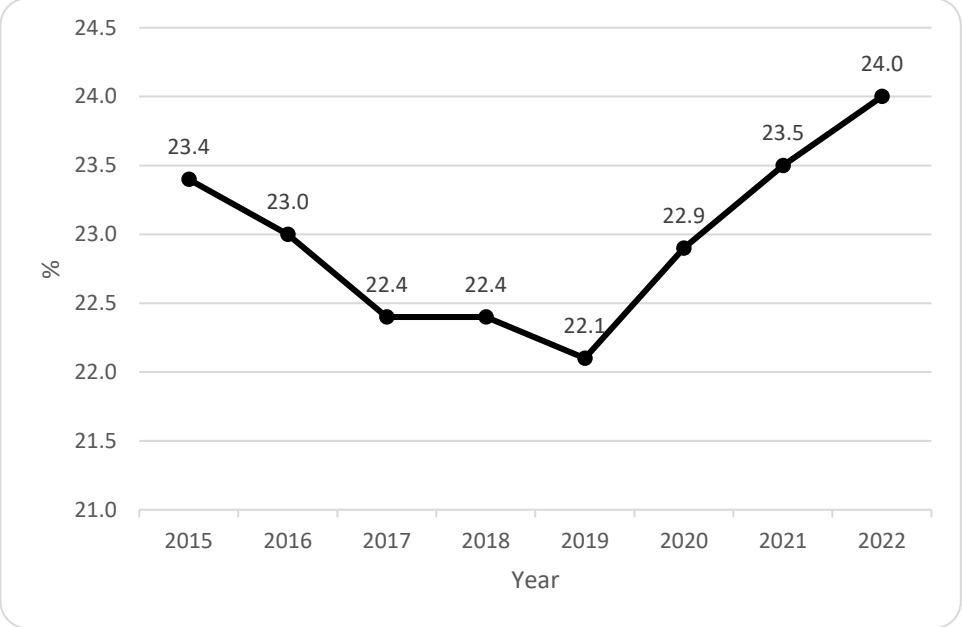

Figure 1.1 The Contribution of Manufacturing Sector to GDP

The total number of manufacturing establishments in Malaysia stands at 49,101 to date. Majority (18.6%) of the companies are the textiles, wearing apparel and leather products manufacturers. This is followed by non-metallic mineral products, basic metal and fabricated metal products manufacturers (18.3%), wood, furniture, paper

and printing products manufacturers (17.2%), vegetable and animal oils and fats, and processed food products manufacturers (16.4%), transport equipment, other manufacturing and repair products manufacturers (11.2%), petroleum, chemical, rubber and plastic products manufacturers (9.4%), electrical, electronic and optical products manufacturers (8.0%) and beverage and tobacco products manufacturers (0.9%) (DOSM, 2017).

In terms of concentration of the establishments, as shown in Figure 1.2, the majority of the manufacturers are located in Selangor (20.4%), followed by Johor (16.4%), the Federal Territory of Kuala Lumpur (10.7%), Perak (8.9%), Pulau Pinang (8.5%), Kedah (6.7%), Sarawak (5.2%), Terengganu (4.1%), Negeri Sembilan (3.9%), Kelantan (3.8%), Sabah (3.7%), Pahang (3.6%), Melaka (3.1%), Perlis (0.8%), and the Federal Territory of Labuan (0.2%) (DOSM, 2017).

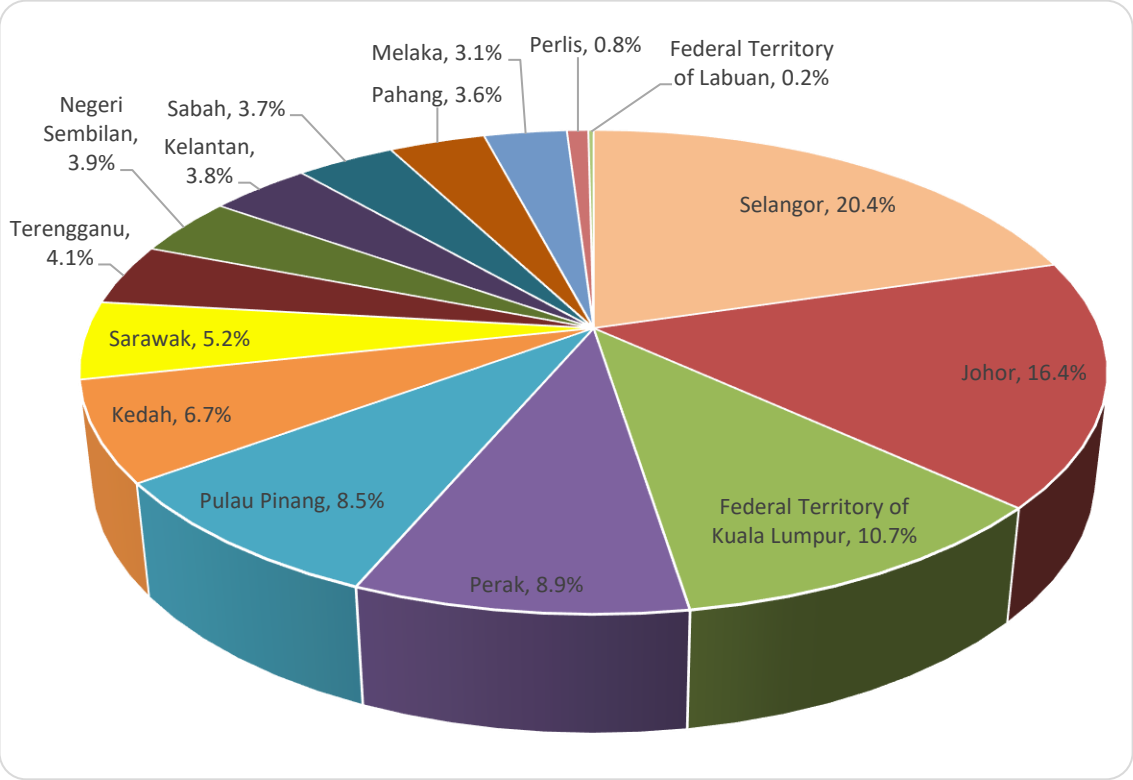

Figure 1.2 Manufacturing Establishments by State

Based on the Federation of Malaysian Manufacturers (2019), manufacturing firms are categorized into three (3) groups according to their sizes, which are determined by the number of full-time employees of the firm. Small firms consist of 5 to 75 employees, medium sized firms consist of more than 75 to 200 employees and large firms consist of more than 200 employees. The sector comprises both export and domestic oriented subsectors with 259 industries. Among them, three (3) catalytic subsectors that drive the Malaysian manufacturing sector towards the provision of high value, diverse and complex products are Electric and Electronics (E&E), Machinery and Equipment (M&E) and Chemicals and Chemical products subsectors (Malaysia Productivity Corporation, 2019). Moreover, manufacturing goods represent the largest share of the country's total exports as illustrated in Figure 1.3 (DOSM, 2021b; Statista, 2022).

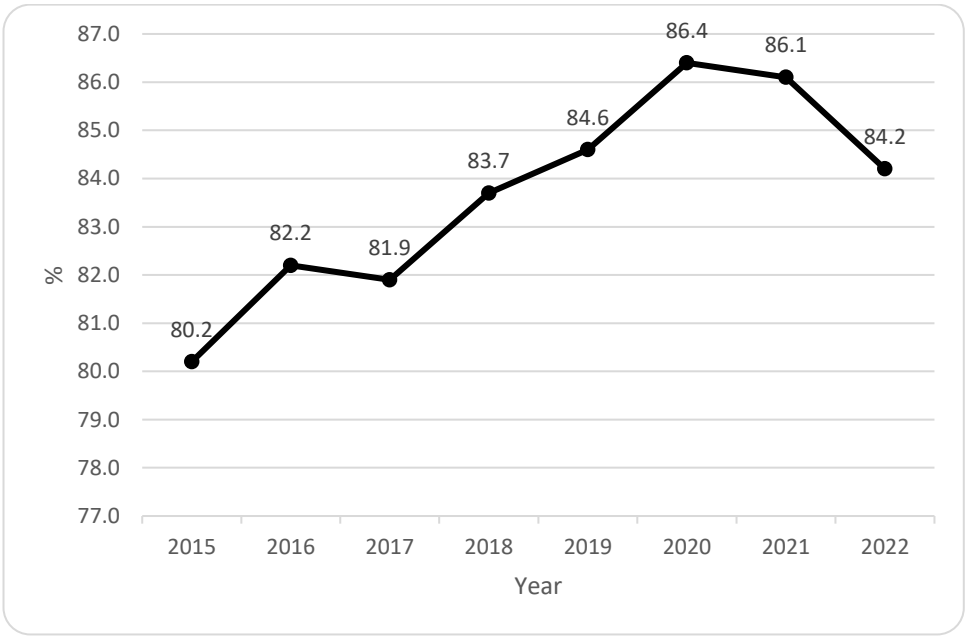

Figure 1.3 The Total Exports Share of Manufacturing Goods

The manufacturing sector is well known for its glory of transforming Malaysia's identity from an exporter of agricultural products to the exporter of industrial products. Indeed, economically Malaysia has been performing well since the 1980s after its transformation into becoming an industrialized nation (Narayanan & Wah, 2017). Acknowledging the crucial role of the manufacturing sector, the Government consistently allocates a huge amount of budget every year to develop the sector. Table 1.1 details out the budget allocation channelled by the Government of Malaysia to the manufacturing sector from 2016 to 2024, which hit the highest at RM7.387 billion for the year 2024 (Ministry of Finance, 2015, 2023). With such a supportive pattern of budget, it is reasonable to expect the sector to be highly resilient and competitive. However, the current state of affair among manufacturing firms in Malaysia does not reflect the desired signs of resilience (Zhou et al., 2021) with the growth rate of the sector showing a continuous decline (see Figure 1.4); thus, calling for a serious attention for improvement.

Table 1.1 Budget Allocation by Government of Malaysia

Year	**Details of Budget Allocation**	**Amount (RM)**
2016	• Domestic investment fund to Malaysia Investment Development Authority (MIDA) for chemical, electrical & electronics, machinery and equipment, aerospace and medical devices industries and services.	730M
	• Shariah compliant SME financing scheme with a subsidy of 2% of the financing profit rate.	1B
	• SME Blueprint to fund business development of entities.	107M
	• SME Technology Transformation Fund through SME Bank at 4% interest rate.	200M
	• Entrepreneurs Acceleration, SME Capacity and Capability Enhancement Scheme.	60M
	• 1Malaysia promotion program, services export fund & export promotion fund to MATRADE.	235M
	• Various programmes funding to Bumiputra Agenda Unit (TERAJU).	150M
	Total	**2.482B**

Table 1.1 (*Continued*)

Year	Details of Budget Allocation	Amount (RM)
2017	• Allocation of fund to MIDA focused to chemical, electrical & electronics and R&D activities. • National Export Promotion Funds to SMEs through MATRADE, MIDA and SME Corp. • Loan financing and increase credit facilities to SMEs via EXIM Bank. • SME master plan to promote SMEs. • Facilitation Fund & Export Fund to TERAJU. Various entrepreneurship programmes through MARA.	522M 130M 200M 75M 600M 120M
	Total	**1.647B**
2018	• High-Impact Strategic Fund under MIDA. • SMEs training programmes grants & soft loans. • Halal Industries development and product. • Promotional programmes and expand export market & Market Development Grant. • Automation in production of local furniture for export with 70% guarantee by Government. • Bumiputra entrepreneurship enhancement program. • IR 4.0 business and investment activities under Domestic Investment Strategic Fund (DISF) to upgrade Smart Manufacturing facilities.	200M 200M 82M 150M 100M 555M 245M
	Total	**1.532B**
2019	• SME Readiness Assessment for IR4.0. • Industry Digitalisation Transformation Fund with subsidised interest rate at 2%. • SMEs capability enhancement in Halal Industry. • Shariah-based compliance SME financing Scheme with a subsidy of 2% of the financing profit rate. • Buy Malaysian Product campaign to support local manufacturers.	210M 3B 100M 1B 20M
	Total	**4.330B**
2020	• SMEs digitization grants. • Smart manufacturing & automation grants. • Halal products export fund for Bumiputera SMEs. • Internalization activities for Halal Industry through Ministry of Entrepreneurship Development. • Market development grant to MATRADE to encourage SMEs promotion activities. • Bumiputra entrepreneur development program through TEKUN National, SMECorp, PUNB, PHB and TERAJU.	500M 550M 300M 10M 50M 445M
	Total	**1.855B**
2021	• Incentive package for high value-added technology; a. R&D investment in aerospace b. Electronic cluster in Batu Kawan & Kulim Industrial Park • High technology Fund by Bank Negara Malaysia for high tech and innovative companies. • Bumiputra SMEs financing & Micro SMEs through TEKUN & PUNB. • Bumiputra Capacity Building Programmes by Bank Pembangunan Malaysia and SME Bank. • Financing of Bumiputra SMEs via Syarikat Jaminan Pembiayaan Perniagaan (SJPP). • Bumiputra Programmes and Dana Kemakmuran Bumiputra Funds.	1B 500M 510M 800M 2B 1.3B
	Total	**5.110B**

Table 1.1 (*Continued*)

Year	Details of Budget Allocation	Amount (RM)
2022	• Smart Automation Matching Grants. • Technological transformation incentive for SMEs and mid-stage companies in the manufacturing and services sector. • SME Digitalisation Grant Scheme. • Matching Grant for Aerospace Businesses. • Halal Development Corporation to execute programmes to develop more Halal MSMEs that are able to compete internationally • Innovation Hub: Industrial Revolution 4.0 under Technology Park Malaysia • MyStartup strategy • Collaborative Research in Engineering, Science and Technology • Maintenance Repairs and Overhaul (MRO), Electrical and Electronics (E&E) and chemicals industrial clusters • Bumiputra Programmes and Dana Kemakmuran Bumiputra Funds.	100M 45M 200M 100M 25M 30M 20M 12M 80M 4.8B
	Total	**5.412B**
2023	• SME Digitalisation Grant Scheme. • JENDELA Project: Digital connectivity project for 47 Industrial areas • SME Automation and Digitalisation Facility • Bumiputra MSME Sustainability Fund • Various entrepreneurship program under SME Corp • SMEs financing through TEKUN, PUNB, MARA. • SME Recapitalisation Fund • High Tech & Green Facility • Exporter Development Incentive Scheme through EXIM Bank • Industrial Digitization Transformation Scheme	100M 725M 1B 160M 88M 415M 600M 1B 1B 1B
	Total	**6.088B**
2024	• Various entrepreneurship program under SME Corp • Exporter Development Incentive Scheme through EXIM Bank • Industrial Digitization Transformation Scheme • SMEs financing through TEKUN, PUNB, MARA & TERAJU. • SME Recapitalisation Fund through BNM & SME Bank • SME Automation and Digitalisation Facility • High Tech & Green Facility • Various scheme under Malaysia Industrial Development Finance (MIDF) • Various scheme under SME Bank	130M 1B 1B 638M 1.5B 914M 808M 347M 1.05B
	Total	**7.387B**

Source: Ministry of Finance Malaysia. (2023). Budget Speech 2016-2024. www.treasury.gov.my

To understand the resilience of manufacturing firms in Malaysia, an elucidation on the sector's industrial master plans is essential. The First Industrial Master Plan (IMP1) from 1986 to 1995 focused on promoting the processing of natural resources instead of exporting raw materials. Following that, the Second Industrial Master Plan (IMP2), from 1996 to 2005 concentrated on integrating industrial linkages

and developing cluster that combines both manufacturing processes and business support (MITI, 2006).

In the Third Industrial Master Plan (IMP3), which was from 2006 to 2020, Malaysia focused on creating innovative small and medium enterprises (SMEs), which are independent from multi-national corporations (MNCs) and government-linked companies (GLCs). In this plan, the multimedia industry and information technology (IT) were the main focus in achieving global competitiveness through the transformation and innovation of manufacturing and service sectors (MITI, 2006). Even though IMP3 looks good on its surface, the actual contribution of IMP3 to the manufacturing sector's progress remains debatable as the growth of the manufacturing sector indicated a declining trend from 6.6% in 2010 to 4.8% in 2015, and further to -2.6% in 2020 (DOSM, 2021).

This declining trend highlights an inconspicuous impact of IMP3 on the resilience of Malaysian manufacturing sector. This is because IMP3 basically sets a goal for the independence of SMEs from MNCs; however, the readiness of SMEs for such changes remained questionable. Responding to this, some scholars have argued that it is still premature for the Malaysian manufacturing SMEs to survive independently as the labour intensive and efficiency-based models restrict their resilience against external jolts and technological advancements (Zhou et al., 2021). This situation has silently hampered the manufacturing sector's competitiveness due to the absence of a phased approach to align strategies with the actual conditions of SMEs in Malaysia (Zhou et al., 2021), which represents the third largest sector after services and construction SMEs.

Apart from that, MNCs have also started to move out from the country since the year 2013, triggering a more vulnerable condition to the sector's resilience (Kevin, 2017). Some examples of these companies are Japan Tobacco International, Suzuki Motor Corporation, Seagate Technology Plc., British American Tobacco, Samsung, Fairchild Semiconductor International Inc., STR Holdings Inc., SunEdison Semiconductor Ltd., and Toyo Tyre Corp. The closure of these companies was fundamentally associated with the failure in adapting to the various changes and challenges imposed by the business environment as well as the drop in sales and demand for the companies' products (Kevin, 2017). Such reverberation has an adverse effect on the employment rate, technology transfer and investors' sentiments towards the Malaysian manufacturing sector.

Knowing the vital role and contribution of the manufacturing sector to the nation's wellbeing, significant efforts to improve resilience of the manufacturing firms need to be undertaken. Failure to do so in a swift manner will lead to a devastating downfall of the nation's economy and its people since the manufacturing sector has a significant impact on the GDP, GNP, employment rate, exports, and tax revenues of Malaysia. Hence, it is pivotal to safeguard the sector's resilience to ensure an enduring economic performance and prosperity of the nation.

Inverse of its criticality to uphold the nation's economic wealth, an intensive review of the literature showed limited available research on resilience of manufacturing organizations in Malaysia. Most of the studies available in the literature are from the developed nations (e.g., Dubey et al., 2018; Duchek, 2020a; Mccarthy et al., 2017; Polyviou et al., 2020; Sabatino, 2016; Morales et al., 2019). Moreover, majority of the scholars in organizational resilience studies have centred their attention

on developing theories and discussing conceptualizations, rather than conducting empirical investigations to suggest ways to improve resilience (Rahi, 2019; Morales et al., 2019; Hillmann & Guenther, 2020; Shashi et al., 2020). On that account, it is felicitous for the present research to delve into the factors that may enhance organizational resilience of the manufacturing firms in Malaysia to fill this insight deficiency and escalate the sector's competitiveness.

1.2 Problem Statement

The increasing number of unprecedented events arising from both external disruptions as well as internal failures create numerous challenges to organizations; hence, popularizing the concept of organizational resilience in recent years (Burnard et al., 2018; Conz & Magnani, 2020; Duchek, 2020a; Ma et al., 2017; Rahi, 2019; Shashi et al., 2020; Williams et al., 2017; Su & Junge, 2023). By and large, organizational resilience explains how an organization can survive and continue to thrive amidst of adverse condition that threatens its stability over time (Hillmann & Guenther, 2020; Kumar & Anbanandam, 2019; Shashi et al., 2020).

In consonance with the background in the previous section, the resilience of manufacturing organizations in Malaysia requires continuous attention and perseverance. The manufacturing sector is viewed as a catalyst of growth for many economies, including Malaysia (Vaaland & Ishengoma, 2016). Besides its contribution in escalating Malaysia's reputation globally (Narayanan & Wah, 2017), the sector also plays a fundamental role in driving all other sectors in the economy, such as logistics, information and communication technology, finance, and other services (Tao, 2019). Therefore, resilience of the manufacturing sector emerges as a

top priority not only for the sake of its survival, but also for the competitiveness of the nation's economy as a whole.

However, over the last few years, it has been reported that the competitiveness of the manufacturing sector in Malaysia is in a declining trend. This is indicated by the Global Competitiveness Report, in which Malaysia's position has slid from the 17th rank in 2016 to the 32nd rank in 2022 (International Institute for Management Development [IMD], 2022). Apart from that, it is also reported that the manufacturing sector's contribution to the GDP has fallen gradually from 31.9% in the year 2000 to 31.4% in 2005, 29.7% in 2010, 23.4% in 2015, and 22.9% in 2020 (DOSM, 2021a; MITI, 2006). Besides that, as shown in Figure 1.4, the manufacturing growth has also been in decreasing mode from 18.3% in 2000 to 5.2% in 2005, 6.6% in 2010, 4.8% in 2015, and -2.6% in 2020 (DOSM, 2021a; MITI, 2006). The diminishing trend continues despite of the increased foreign direct investment and domestic direct investment into the manufacturing sector (Lee, 2018). This implies a symptom of deterioration in the sector's resilience, which may severely impact the overall economic performance of the nation.

According to Ritter & Pedersen (2020, pp. 220-221), an organization's business model can be classified into two main categories based on the impact of disruption, namely, resilient and vulnerable models. Resilient models can be divided into several types such as antifragile, robust, adaptive, and suspended models. Whereas vulnerable models can be described as either aided or retired models. Aided business models are referred to organizations that are unable to finance themselves, and depend on the support provided by external parties, such as the government, investors, or

banks for survival. Meanwhile, retired business models denote those organizations that have winded-up during disruptions.

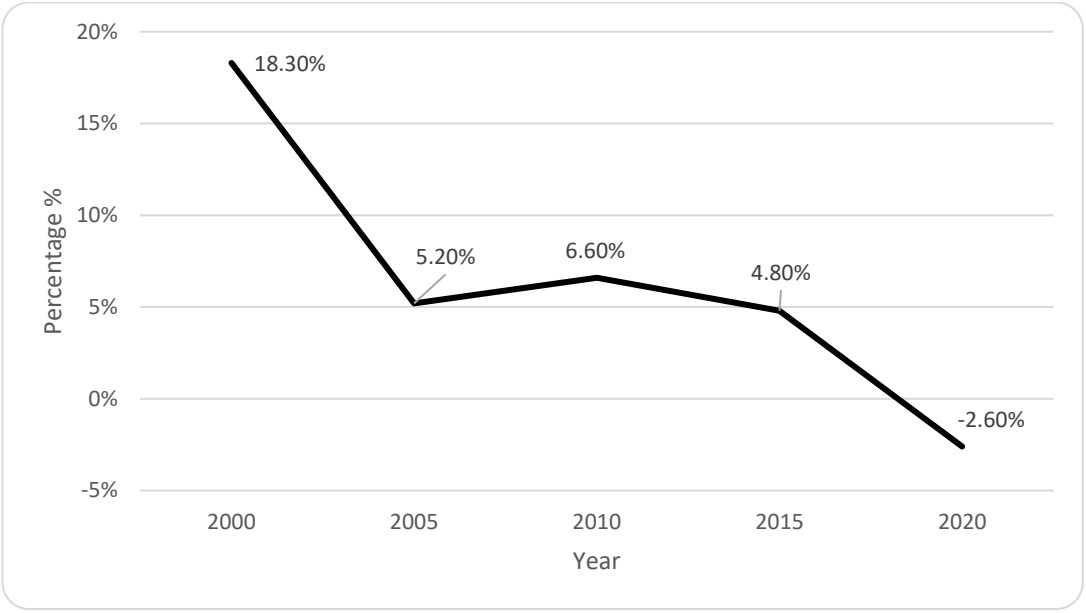

Figure 1.4 The Manufacturing Growth in Malaysia

The vulnerable condition of the manufacturing sector in Malaysia is well-delineated by the number of dissolved manufacturing firms from 2017 to 2019, which has reached a total of 26,552 firms (Companies Commission of Malaysia [CCM], 2020). This illustrates the lack of resilience among the manufacturing firms even before the rise of the Covid-19 pandemic. This trend continued in 2020 until 2022, whereby a total of 13,995 manufacturing firms had winded-up their operations (CCM, 2022). The closure of these organizations may have been the result of failure to cope with various challenges, including the changes brought by the Covid-19 pandemic such as lockdowns, social distancing, standard operating procedures, and the movement control order. This can be seen from the announcements made by the related agencies and ministries from time to time via mass medias.

Subsequently, in terms of “aided” businesses, the vulnerable condition of the manufacturing companies in Malaysia can be seen through the funds allocated by the Malaysian Government to these organizations. For example, during the implementation of movement control order, ‘PENJANA’ initiative amounting RM 7 billion was allocated to assist domestic businesses in confronting the impact of Covid-19 pandemic (Prime Minister Department [PMO], 2020). Other than that, the Government had also announced the ‘Prihatin’ assistance to businesses, in which over 300,000 companies were aided (PMO, 2020). Subsequently, the Prime Minister announced that the Government had spent RM14.4 billion in wage subsidy programme that benefitted 330,000 employers as of 5 March 2021 (PMO, 2021). Further to that, the government has separately allocated RM1.4 billion of financial aid to support the development of domestic supply chains and manufacturing of local products through the National Development Scheme (Ministry of Finance, 2021, 2022). The huge financial aids provided by the Government shows that organizations in Malaysia, especially, the manufacturing organizations are not resilient and do not possess sufficient resources and capabilities to buffer environmental jolts; thus, are highly dependent on external support during the times of disruption.

Apart from the Covid-19 pandemic, as explained in the preceding section, Malaysian manufacturing firms are also vulnerable to natural disasters such as floods, storms, landslides, and man-made disruptions. Moreover, as the modern manufacturing firms are highly dependent on the global supply chains and complex international financial, logistics, and IT infrastructures (Bag et al., 2023; Song et al., 2021), external disruptions such as financial crises, pandemics as well as geopolitical issues often threaten their organizational resilience. For instance, the depreciation of Malaysian Ringgit against US dollar or foreign currencies, the oil price war among

source countries, and the supply chain disruptions caused by the Ukraine-Russia political unrest may lead to an increased production cost due to the hike in raw material expenditures. These in turn may adversely impact the resilience and competitiveness of manufacturing organizations. Therefore, manufacturing organizations must be well-prepared, able to respond rapidly, and adapt to the intense challenges imposed by these uncertain events to remain resilient and successful. This is imperative as the competitiveness of this key sector determines the long-term economic stability of the nation.

Despite of its profound criticality for economic success, the academic investigations on organizational resilience are still at embryonic stage. Most of the studies available in the existing literature are at conceptual stage, whereby the scholars often debate the definition of organizational resilience and its measurement (Amir & Kant, 2018; Hillmann & Guenther, 2020). In short, the insight offered by the current literature is still at the nascent stage in explaining how organizations may continue to survive and flourish in adverse conditions (Gölgeci et al., 2019; Dahmen, 2023). Indeed, the question of how some organizations remain competitive or even prosper in a turbulent environment, while the others fail remains unanswered.

There are lack of empirical studies in the literature that provide a clear understanding of how to cultivate resilience in organizations (Hillmann & Guenther, 2020; Li et al., 2017; Shashi et al., 2020), particularly among lower and middle income nations (Falciola et al., 2023). This theoretical lacuna exists in all contexts of studies, including the manufacturing context (Morales, et al., 2019). Hence, the present study takes the edge off by conducting a quantitative empirical study to investigate the strategic factors contributing to organizational resilience, particularly in the

manufacturing sector of Malaysia. The core belief of this study is that there are always unexploited resources and capabilities available in every business context, which if well utilized will create an overwhelming competitiveness to the organization. Echoing to this, many studies in the existing literature emphasized that organizational resilience is functional to an organization's capacity to leverage its internal resources and capabilities to make adjustments and continue to function across disruptive conditions (Burnard et al., 2018; Gölgeci et al., 2019; Jiang et al., 2019; Esteve-Pérez et al., 2023).

Thus, a number of prior studies have suggested future researchers to investigate the enabling factors, particularly, the resources and capabilities that can improve organizational resilience (e.g., Burnard et al., 2018; Jiang et al., 2019; Kumar & Anbanandam, 2019; Parker & Ameen, 2018; Morales et al., 2019). In response to these calls, the present research aims to investigate how organizations' strategic resources and capabilities may affect organizational resilience in the Malaysian manufacturing sector. In explaining this, the current research focuses on relevant resources and capabilities identified through an intensive literature review, which may enhance organizational resilience but remain understudied or lack a plausible explanation of the underlying process or contingency factors that potentially affect the phenomenon.

For example, the role of financial resources in cushioning organizations during adverse conditions to hold resilient is an undeniable fact (Barasa et al., 2018; Linnenluecke, 2017). However, there are not many studies that have confirmed this relationship quantitatively in the literature. Moreover, there are also studies that have negatively linked financial resources to organizational resilience (e.g., Fallon-Byrne & Harney, 2017; Gruener & Raastad, 2018; Meier et al., 2013; Latham & Braun,

2009). Albeit of the existence of these contradicting relationships, almost none of the prior studies in the literature have further inquired these inconsistencies.

The similar gaps are found in the literature for human capital and IT infrastructure flexibility, whereby the inconsistencies in their relationships with organizational resilience have not been sufficiently addressed. Human capital, which includes explicit knowledge, tacit knowledge or know-how and intrinsic values such as motivation, commitment, and work engagement is one of the most powerful assets that will undoubtedly contribute to the resilience of an organization (Barasa et al., 2018; Blanco & Montes-Botella, 2017; Mubarik et al., 2020; Pereira et al., 2020). Likewise, a flexible technological infrastructure plays a significant role in upholding resilience with its key quality of flexibility (Cepeda & Arias-Pérez, 2018; Chen & Siau, 2020; Lin et al., 2020). This has been practically experienced by businesses around the world during the pandemic of Covid-19 as all communication and work processes had to be modified to allow remote and virtual working conditions. However, several prior studies have indicated non-significant direct relationships between human capital and IT infrastructure flexibility, and organizational resilience (Benitez et al., 2018; Khan et al., 2019; Liu et al., 2013; Rafiki, 2020).

This situation seems to delineate the absence of some contingency elements that strengthen the effectiveness of human capital and IT infrastructure flexibility in engendering resilience of organizations. With this reasoning, the present study seeks to reduce these gaps, and concurrently extend the existing body of knowledge by adding improvisation capability as a moderator to examine how this moderating effect may help to escalate the strength of relationships between financial resources availability, human capital, and IT infrastructure flexibility, and organizational

resilience. Improvisation capability is particularly selected due to its attributes that comprises creativity, spontaneity, bricolage, innovation, and intuitive elements that perfectly fit the desired qualities in dealing with limited resources and time pressure during disruptive circumstances (Conti et al., 2020; Nemkova et al., 2012; Zenk et al., 2020). The investigation of this moderating effect advances the present study from the existing literature.

Next, the contribution of social capital is integral for organizational resilience and the prior literature reflects that social capital has frequently been a supportive factor for enhancing organizational resilience (Gölgeci & Kuivalainen, 2020; Polyviou et al., 2020; Torres et al., 2019). Similarly, leadership, especially the transformational leadership has also been consistently reported as an imperative determinant in promoting organizational resilience (Farahnak et al., 2020; Thomas, 2020; Valero et al., 2015). Since these determinants are found to provide a consistent positive impact on organizational resilience, the present research is interested to identify the plausible mechanism that underlies such relationships. This corresponds to the arguments of prominent theorists such as Seddon (2022) and Lipton (2004) that the best explanation of a phenomenon arrives from the greatest understanding of its mechanism.

Ergo, this study sheds light on a potential mechanism of organizational resilience as recommended by prior studies, known as collective mindfulness (Linnenlueke et al., 2017; Sutcliffe et al., 2016; Williams et al., 2017; Tasic et al., 2019). Collective mindfulness is a concept rooted from the psychological literature and often applied in high reliability organizations (HROs). These organizations are regularly exposed to high-risk environment, in which avoiding accidents and errors is utmost important. Collective mindfulness is a new concept and to the best knowledge

of the researcher, it has not been empirically tested in the organizational resilience literature, particularly, in the relationships of social capital and transformational leadership, with organizational resilience. Therefore, the present study examines this concept to add novelty to the existing literature of organizational resilience while proposing a possible solution to the practical problems faced by managers.

Apart from that, as culture forms the fundamental values that determine the perspective and behaviour of employees, the practice of resilience in an organization requires a supportive culture (Aziz & Manab, 2020; Dahmen, 2023). The appropriate culture that has been suggested in the literature for improving organizational capacity to deal with disruption is the risk management culture (Al Naimi et al., 2020; Kumar & Anbanandam, 2020; Liu et al., 2018). In fact, it has been argued that the cultivation of resilience in organizations shall start from instilling the risk management culture (Abeysekara et al., 2019; Liu et al., 2018). Hence, this study examines the role of risk management culture in promoting organizational resilience in the current context.

While some studies have highly recommended risk management culture that involves anticipative and planning oriented approaches to deal with disruption (e.g., Christopher & Peck, 2004; Kumar & Anbanandam, 2020; Adobor, 2018; Al Naimi et al., 2020; Chowdhury & Quaddus, 2017; Soni et al., 2014; Domańska-Szaruga, 2020), others have called for organizations to practice an adaptive approach that involve creativity and spontaneity in handling disruptions, particularly for those unpredictable, complex, and rapid disruptions (Schäffer, 2020; Kaplan et al., 2020; Suarez & Montes, 2020; Pavlou & Sawy, 2010). Therefore, this research assesses the direct effect of improvisation capability on organizational resilience. Although improvisation capability is perceived as a potential antecedent in promoting organizational resilience

in the modern business environment, which is highly turbulent with unexpected and impactful challenges (e.g., Zenk et al., 2020; Witmer & Mellinger, 2016; Nemkova et al., 2012; Bradaschia & Pereira, 2015), the empirical studies investigating this relationship are infrequent in the current literature (Munir et al., 2022); hence, this warrants a further investigation.

Overall, by incorporating all these variables and investigating the relationships between them, the present research aims to: (1) develop a novel model on the theoretical grounds of RBV, illustrating how strategic resources and capabilities of firms may contribute to organizational resilience; and (2) validate the model in the context of the manufacturing sector in Malaysia. This study focuses on strengthening the internal resources and capabilities to enable organizations navigate different kinds of disruptions instead of concentrating on strategies to deal with a single or specific type of disruption as most of the past studies did (Andersson et al., 2019, p. 34; Hillmann & Guenther, 2020; Linnenluecke, 2017). Thus, it offers a more comprehensive model of organizational resilience relevant to the complex, uncertain, and evolving nature of the modern business environment.

1.3 Research Objectives

Based on the preceding problem statement, the present study aims at investigating the effects of firm strategic resources and capabilities on organizational resilience. Specifically, the study examines the interplay between financial resources availability, human capital, IT infrastructure flexibility, risk management culture, social capital, transformational leadership, improvisation capability, and collective mindfulness in contributing to organizational resilience in the context of

manufacturing firms in Malaysia. Accordingly, a number of research objectives are articulated:

1. To examine the effect of financial resources availability on organizational resilience.
2. To investigate the impact of human capital on organizational resilience.
3. To examine whether IT infrastructure flexibility affects organizational resilience.
4. To investigate the moderating effect of improvisation capability on the relationship between financial resources availability and organizational resilience.
5. To investigate the moderating effect of improvisation capability on the relationship between human capital and organizational resilience.
6. To investigate the moderating effect of improvisation capability on the relationship between IT infrastructure flexibility and organizational resilience.
7. To examine whether improvisation capability has a direct effect on organizational resilience.
8. To examine the impact of risk management culture on organizational resilience.
9. To examine the impact of collective mindfulness on organizational resilience.
10. To investigate the effect of social capital on collective mindfulness.
11. To investigate the effect of transformational leadership on collective mindfulness.
12. To determine whether collective mindfulness serves as a mediator in the relationship between social capital and organizational resilience.

13. To investigate whether collective mindfulness serves as a mediator in the relationship between transformational leadership and organizational resilience.

1.4 Research Questions

Corresponding with the research objectives, the following research questions are proposed to guide the research process in resolving the problem stated:

1. Does financial resources availability affect organizational resilience?
2. Would human capital affect organizational resilience?
3. Does IT infrastructure flexibility affect organizational resilience?
4. To what extent does improvisation capability moderate the relationships between financial resources availability, human capital, and IT infrastructure flexibility, and organizational resilience?
5. Does improvisation capability directly affect organizational resilience?
6. Would risk management culture affect organizational resilience?
7. Would collective mindfulness affect organizational resilience?
8. How does social capital affect collective mindfulness?
9. How does transformational leadership affect collective mindfulness?
10. Would collective mindfulness mediate the relationships of social capital and transformational leadership with organizational resilience?

1.5 Research Significance

The present research synthesizes diverse knowledge from the literature on organizational resilience. The significance of this research can be discussed from both theoretical and practical perspectives.

1.5.1 Theoretical Significance

The contribution of this study to the extent literature of organizational resilience is manifold. Firstly, this study explains the strategic resources and capabilities that an organization may leverage in promoting resilience. The study adds to the existing knowledge by developing and empirically testing a comprehensive model based on RBV to provide the most accurate explanation on the associations between resources and capabilities, and organizational resilience. This is an important contribution to organizational resilience literature as most of the studies in the current literature are conceptual in nature.

Secondly, this study adds focus on the conceptualization of organizational resilience with the development of a theoretical model framed by RBV. RBV allows a more focused view of organizational resilience as an outcome of an organization, which takes the position of competitive advantage (Carvalho et al., 2016; Hillmann & Guenther, 2020; Mallak & Yildiz, 2016; Munoz et al., 2022; Dahmen, 2023). Therefore, it enables the present study to adopt an outcome-based definition that provides more clarity to the conceptualization of organizational resilience; hence, contributing to the literature, which is currently filled with inconclusive and fragmented conceptualization of the term (Hillmann & Guenther, 2020; Li et al., 2017; Linnenluecke, 2017; Ruiz-martin et al., 2018). Therefore, it offers the upcoming researchers with a clearer understanding of the organizational resilience concept.

Third, while several preceding studies have extended the applicability of RBV to organizational resilience studies and linked the concept to resources and capabilities, no known studies have integrated the collective mindfulness concept into such investigations to date. This study advances the existing knowledge by introducing