

Performance of the MSMEs Manufacturing Sector in Malaysia: An Overview

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Abstract: Micro, Small, and Medium Enterprises (MSMEs) form the backbone of Malaysia's economy, accounting for nearly 97% of business establishments and contributing 39.1% to the GDP in 2023 (SME Corp Malaysia, 2024). This study provides a comprehensive review of the performance of the Malaysian MSME sector. This study synthesizes recent statistical data and empirical studies to explore MSMEs' contributing factors, MSMEs establishment by size and sector, state, value of MSMEs GDP and overall GDP, number and annual percentage change of employment, MSMEs' employment by type of economic activity, value and annual percentage change of labor productivity, and ongoing challenges faced by MSMEs. In addition, this study discusses government policy and support, as well as the impact of technological adoption among MSMEs in Malaysia. Furthermore, this study highlights the overall performance of MSMEs in the manufacturing sector and their determinants. The key determinants include technological capability, managerial competence, financial access, supply chain integration, and government support. In conclusion, to enhance MSME performance, policymakers must streamline access to government support and incentivize digital transformation. These strategies will help manufacturing MSMEs become more resilient and competitive.

Keywords: *MSMEs, GDP contribution, MSMEs performance, Manufacturing sector, Malaysia*

1. Overview of Micro, Small and Medium Enterprises (MSMEs) in Malaysia

MSMEs are regarded as the economic backbone of a country, particularly in developing countries. Performance is the primary objective of any MSME to sustain competitiveness in the business world (Efrat et al. 2018). Performance is defined as the ability of a unit, organization, group, or individual to achieve a specific goal through a set of activities (Kumar, 2021; Laitinen, 2002). Performance is also conceived as the effectiveness of an organization in achieving its goals of behavior in work and task accomplishment (Gómez-Mejía, Berrone, & Franco-Santos, 2014). The performance of businesses can be gauged financially and non-financially. According to Chen et al. (2015), financial performance measures are a better indicator of competitive advantage than other measures. Since Malaysian MSMEs are a substantial force in the national business environment, investigating their performance is very important.

MSMEs are defined differently depending on the industry. Generally, it is based on two (2) criteria: sales turnover and number of full-time employees. In the manufacturing sector, MSMEs are defined as companies with a turnover of no more than RM 50 million or fewer than 200 full-time employees. MSMEs in the service and other sectors are defined as businesses with a maximum turnover of RM 20 million or several full-time employees 75. The contribution of MSMEs to the gross domestic product (GDP) decreased to 39.1% in 2023, with a value-added of RM613.1 billion. GDP indicates that this industry is significant for the development of the Malaysian economy.

This study aims to provide a comprehensive overview of the performance of the Malaysian MSME manufacturing sector. The paper is structured as follows: It begins with an introduction outlining the importance of MSMEs in Malaysia's economy. The next sections analyze key statistics on MSME contributions, establishments by size and sector, geographical distribution, GDP contribution, employment, and labor productivity. The study then discusses major challenges faced by MSMEs, government policies and support initiatives, and the impact of technological adoption. A focused section examines the manufacturing MSME sector, including its distribution, subsectors, and GDP growth. The study concludes by synthesizing the key determinants of MSME performance in manufacturing, including technological capability, managerial competence, financial access, supply chain integration, and government support.

2. Contributions of MSMEs

Micro, Small, and Medium Enterprises (MSMEs) play a vital role in Malaysia's socioeconomic development, contributing significantly to GDP, employment, export activity, and industrial innovation. As SME Corp Malaysia (2023) reported, MSMEs accounted for 38.4% of the country's GDP and 48.2% of the total employment in 2022. The manufacturing subset of MSMEs is particularly influential in driving industrial output, supplying intermediate goods, and supporting large firms through subcontracting and supply chain integration (Ramachandran, Chandramohan, & Taibangnganbi, 2024). While traditionally focused on domestic markets, many MSMEs have expanded their reach by participating in global value chains, contributing approximately 11.6% to Malaysia's total exports, particularly in secondary processing, textiles, and electronics (Loo, Ramachandran, & Raja Yusof, 2023). In addition to their economic footprints, MSMEs promote inclusive and balanced regional development by generating employment and entrepreneurial opportunities in both urban and rural areas. They also empower marginalized groups, including women, youth, and Bumiputera entrepreneurs (Yahaya & Nadarajah, 2023). Notably, MSMEs have demonstrated remarkable adaptability during crises, such as the COVID-19 pandemic, by adopting digital technologies and pivoting towards e-commerce and remote business models (Lim et al., 2024). Furthermore, the strategic role of MSMEs is closely aligned with Malaysia's long-term policy goals, including the Shared Prosperity Vision 2030 and the National Policy on Industry 4.0 (Industry4WRD), both of which emphasize technological upgrading, innovation, and sustainable growth (Veeraya, Raman, Gopinathan & Singh, 2024). Collectively, these contributions underscore the indispensable role of MSMEs in shaping Malaysia's economic resilience, competitiveness, and inclusive development.

MSMEs Establishment by Size and Sectors

There are 1,173,601 MSMEs in Malaysia, which predominantly represent the establishments (National SME Development Council, 2022). This number is an important driver of the national economic growth. Among them, 84.7 per cent of the establishments were in the service sector, 5.6 per cent in the manufacturing sector, and 7.9 per cent in the construction sector, as shown in Table 1. The remaining sectors were agriculture (1.4 percent) and mining and quarrying (0.4%).

Table 1: Distribution of MSMEs Establishment by Size and Sectors

Sector	No. of SME Establishments					Total
	Services	Manufacturing	Construction	Agriculture	Mining & Quarrying	
Micro	806,947	38,926	64,029	10,574	3,191	923,667
Small	177,435	24,200	24,154	4,946	811	231,546
Medium	9,968	2,531	4,741	921	227	18,388
Total SMEs	994,350	65,657	92,924	16,441	4,229	1,173,601
Share of SMEs (%)	84.7	5.6	7.9	1.4	0.4	100.0
No. of Large Firms	25,867	2,440	1,400	1,527	152	31,386
Overall Establishments	1,020,217	68,097	94,324	17,968	4,381	1,204,987

Source: Economic Census 2022: Profile of Small and Medium Enterprises (2022), Department of Statistics, Malaysia

MSME Establishments by State

In terms of SME establishments by state, the majority of MSMEs are from Selangor (23.2%), WP Kuala Lumpur (14.3%), Johor (10.9%), and Pulau Pinang (7.2%) states. The details are presented in Table 2.

Table 2: Distribution of MSMEs Establishments by State

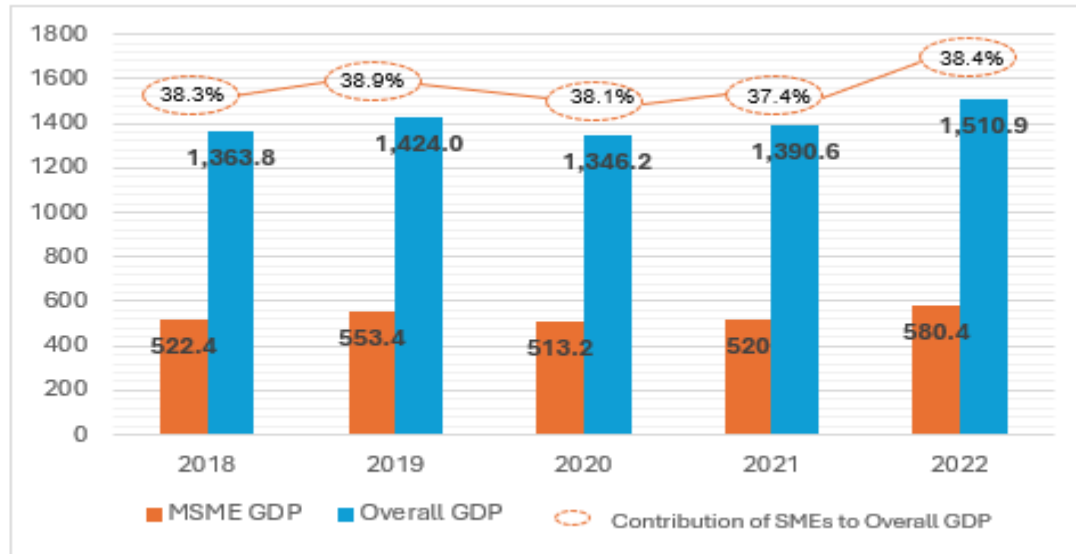
State	Total SMEs	Percentage (%)
Selangor	272,262	23.2
WP Kuala Lumpur	168,176	14.3
Johor	127,747	10.9
Perak	79,244	6.8
Pulau Pinang	84,355	7.2
Sarawak	83,708	7.1
Sabah	80,547	6.9
Kedah	54,063	4.6
Kelantan	50,502	4.3
Pahang	47,638	4.1
Negeri Sembilan	41,089	3.5
Melaka	34,905	3.0
Terengganu	37,671	3.2
Perlis	7,559	0.6
WP Labuan	2,778	0.2
WP Putrajaya	1,357	0.1
Total SMEs	1,173,601	100

Source: Economic Census 2022: Profile of Small and Medium Enterprises, Department of Statistics, Malaysia

Value of MSMEs GDP and Overall GDP

MSMEs contributed RM580.4 billion to the economy in 2022 compared to RM520 billion in 2021, as illustrated in Figure 1. The figure also shows that the contribution of MSMEs to the overall GDP continued to grow to 38.3% (2018), 38.9% (2019), 38.1% (2020), 37.4% (2021), and 38.4% (2022).

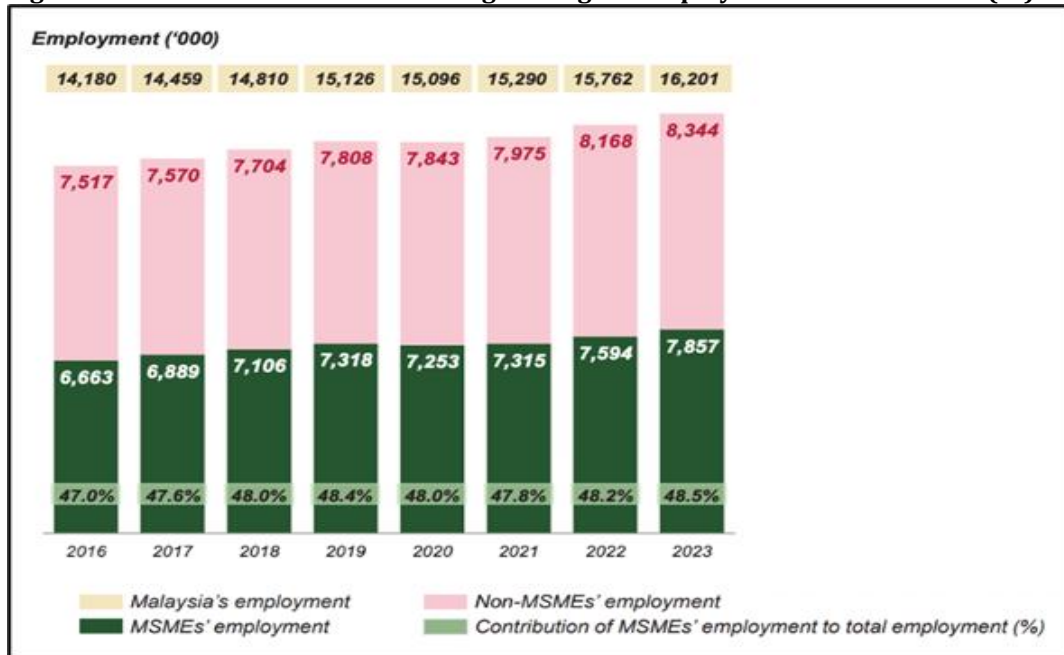
Figure 1: Value of MSMEs GDP and Overall GDP



Number and Annual Percentage Change of Employment for 2016-2023 (%)

The number and annual percentage change in employment from 2016 to 2023 are shown in Figure 2. MSME employment share also increased from 48 percent in 2018 to 48.4 percent in 2019, 48.2 percent in 2022, and 48.5 percent in 2023, resulting from the GDP growth of MSMEs.

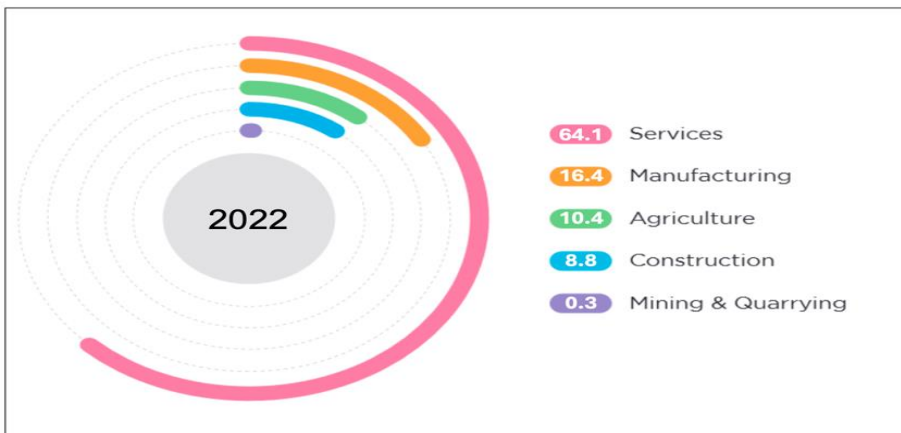
Figure 2: Number and Annual Percentage Change of Employment for 2016-2023 (%)



MSMEs' employment by economic activity

In the context of MSMEs' employment by type of economic activity for 2022, the service sector accounted for the most significant contribution (64.1%), followed by the manufacturing sector (16.4%), agriculture (10.4%), construction (8.8%), and mining and quarrying (0.3%). The details are shown in Figure 3.

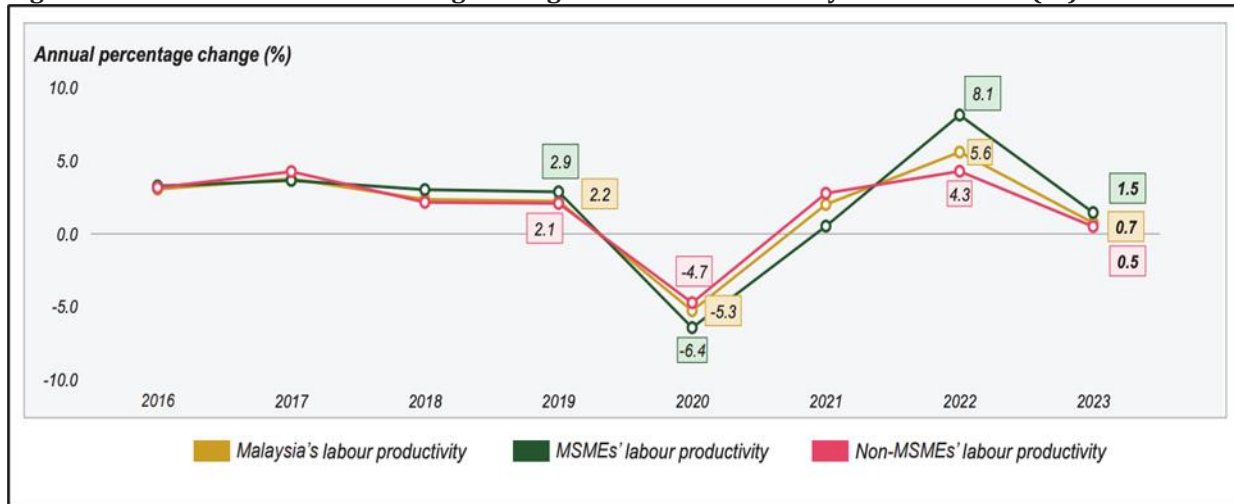
Figure 3: Components of MSME Employment by Sector (%)



Value and Annual Percentage Change of Labor Productivity

In terms of value and annual percentage change in labor productivity, Figure 1.4 indicates that MSMEs employed more labor in 2022, accounting for 8.1 per cent of the total labor in Malaysia, compared to -6.4 per cent in 2020.

Figure 4: Value and Annual Percentage Change of Labor Productivity for 2016-2023 (%)



Challenges Faced by MSMEs in Malaysia

Despite playing a crucial role in the economic development of Malaysia, MSMEs continue to face various issues that limit their growth, competitiveness, and sustainability. One of the foremost issues is the inadequate access to finance. Most MSMEs are unable to access credit due to strict collateral requirements, absence of credit history, and low financial literacy – inhibiting their capacity to invest in innovation, grow businesses, or recover from shocks (AlQershshi, et.al, 2023).

In addition, Lim et al. (2024) stated that technology adoption and digital transformation remain significant hurdles. Although digital tools are essential for enhancing productivity and market reach, many MSMEs lack the infrastructure, technical know-how, and strategic awareness to implement Industry 4.0 technologies effectively.

Furthermore, managerial and human capital limitations constrain the ability to compete in dynamic business environments. Many business owners lack formal training in business management, strategic planning, and innovation, resulting in poor decision-making and operational inefficiencies (Kumar, 2021). Another major obstacle mentioned by Sahu and Mani (2025) is market accessibility and competition issues. MSMEs often face difficulties penetrating new markets due to brand limitations, high marketing costs, and barriers to participating in global value chains.

At last, policy gaps and bureaucratic inefficiencies compromise the success of government-supported projects. Although Malaysia has launched several initiatives to help MSMEs, including financing programs, digital grants, and capacity-building activities, many companies are unaware of these supports or find the application processes unduly difficult and time-consuming (Lim et al., 2024). Collectively, Loo et. al. (2023) highlighted these difficulties underlining the need for a more integrated support ecosystem combining financial inclusion, digital enablement, human capital development, and regulatory reform to empower Malaysian MSMEs for sustainable growth in a competitive, worldwide economy.

3. Government Policy and Support for MSMEs in Malaysia

The importance of MSMEs in promoting innovation, inclusive economic growth, and job creation has long been acknowledged by the Malaysian government. To improve MSME competitiveness and sustainability, numerous policies, initiatives, and institutional frameworks have been put in place, especially through organizations like SME Corp. Malaysia, MATRADE, and MIDA. One of the cornerstone initiatives is the National Entrepreneurship Policy 2030 (Dasar Keusahawanan Nasional 2030), which aims to create a holistic and conducive ecosystem that empowers MSMEs through access to finance, technology, human capital, and international markets (SME Corp. Malaysia 2023).

Policies like the Digital Economy Blueprint (MyDIGITAL) and the National Policy on Industry 4.0 (Industry4WRD) have been put into place to encourage MSMEs to adopt digital technology in line with Malaysia's goals for the digital economy. These incentives include monetary rewards, educational opportunities, and financial assistance for digital projects that encourage MSME participants to embrace automation, cloud computing, and big data. For instance, the SME Digitalization Grant provides matching grants of up to RM5,000 for digital resolutions (SME Corp. Malaysia 2023). In addition to digitalization, the government has introduced several financial assistance programs, including the Micro Credit Scheme, Soft Loan Scheme for the Services Sector (SLSSS), and TEKUN Nasional financing. These schemes seek to solve the ongoing problem of credit tightness in MSMEs through lending that is easy to obtain and has low rates of interest. Yet challenges remain in policy coordination, outreach, and impact measurement. Some MSMEs are simply not aware of the existing programs, others are discouraged by red-tapism, or are not compliant with the eligibility conditions (Lim et al., 2024). In addition, AlQershi et.al (2023) argue that enhancing transparency, reducing red tape, and strengthening inter-agency collaboration are essential to improve policy effectiveness.

Impact of Technological Adoption

Supply chain technology has played a significant role in the supply chain in this decade. It connects people, processes, data, and objects smartly. Supply chain technology offers more benefits. These include giving businesses new ways to profit by better and more efficiently organizing physical, information, financial, and human resources (Lee et al., 2016). Therefore, the adoption and utilization of appropriate technology tools are continuously expanding to gain a competitive edge in today's fast-paced marketplaces. Supply chain technology may assist firms in reducing lead times, shortening product life cycles, increasing efficiency, and ultimately increasing customer satisfaction (Khan et al., 2013).

Technological adoption is a key determinant of firm performance, competitiveness, and resilience in a rapidly evolving global economy. For Micro, Small, and Medium Enterprises (MSMEs) in Malaysia, integrating digital technologies, such as automation, cloud computing, big data analytics, and e-commerce platforms, is increasingly essential to remain viable and competitive, especially in the manufacturing sector. However, the adoption rate among Malaysian MSMEs remains moderate because of the confluence of financial, infrastructural, and human capital limitations (Hanaysha & Alzoubi, 2022).

According to SME Corp Malaysia (2023), although awareness of digitalization has improved in recent years, mainly due to the impact of the COVID-19 pandemic, many MSMEs continue to face significant challenges in adopting new technology. These include limited digital readiness, a lack of skilled personnel, resistance to change, and concerns about return on investment. Consequently, technology adoption often remains superficial or fragmented rather than strategic and integrated into core business operations (Seow, Choong, & Ramayah, 2021).

Despite these challenges, empirical studies have consistently demonstrated the positive impact of technology adoption on MSME performance. According to Lim et al. (2024), Malaysian MSMEs that adopted Industry 4.0 technologies—such as sensors, the Internet of Things, and data analytics—reported increased customer responsiveness, productivity, and process efficiency. In a similar vein, Hanaysha and Alzoubi (2022) noted that businesses that use automation and cloud-based platforms see improvements in inventory control, quicker decision-making, and lower operating expenses.

The Malaysian government has launched a number of programs to promote the adoption of technology in response to these findings. For MSMEs starting a digital transformation, these include the Industry4WRD Readiness Assessment, Smart Automation Grant (SAG), and SME Digitalization Grant, which provide financial incentives and technical assistance (Loo et al., 2023). However, the effectiveness of outreach, implementation, and ongoing capacity building at the grassroots level is critical to the success of these programs. In conclusion, it is widely acknowledged that MSMEs in Malaysia have the potential to adopt technology; however, achieving this potential calls for a concerted effort that includes proactive management, private sector investment, and government support. To unlock productivity gains and position MSMEs for long-term growth in the digital economy, it is imperative to bridge the digital divide and improve technological capabilities.

4. Manufacturing MSMEs in Malaysia

According to the 2022 statistics of the Department of Statistics Malaysia (DOSM), there were 1,173,601 MSMEs in Malaysia. From the figure, 18,388 (1.6%) firms are medium-sized, 231,546 (19.7%) firms are small, and 923,667 (78.7%) firms are micro-sized. Additionally, there were 994,350 firms in the service sector, which comprised the majority (84.7 %). The construction sector is the second largest contributor to total MSMEs in Malaysia, with 92,924 establishments, forming a 7.9% share of total MSMEs, followed by 5.6% in the manufacturing sector (65,657), 1.4% in the agriculture sector (16,441), and 0.4% in the mining and quarrying sector (4,229). Although most economies are composed of service industries, they depend on manufactured goods for their operations and the development of R&D for technological progress (Lavinsaa et al., 2020). The manufacturing sector has emerged as a key driver of employment in the Malaysian economy, reflecting its significant impact on infrastructure development, job creation, and its contribution to the nation's Gross Domestic Product (GDP).

Distribution of MSMEs in the Manufacturing Sector by State

The Malaysian manufacturing sector comprises 54,505 Malaysian SMEs, accounting for 39.1% of the total manufacturing establishments in the country, as shown in Table 3. More than half of the total MSME establishments are small, accounting for 15,534 (28.5 per cent) establishments, while micro-sized establishments represent 37,990 (69.7 per cent) establishments, followed by medium-sized establishments, representing 981 establishments (1.8 per cent). Most manufacturing companies are located in Selangor, followed by Johor and WP Kuala Lumpur, which is the centre of industrialized and port facilities in Malaysia. The details are presented in Table 3.

Table 3: Distribution of MSMEs in the Manufacturing Sector by State

State	Total SMEs
Selangor	16,808
WP Kuala Lumpur	1,632
Johor	9,244
Perak	4,160
Pulau Pinang	5,678
Sarawak	2,589
Sabah	1,667
Kedah	2,988
Kelantan	1,550
Pahang	1,720
Negeri Sembilan	2,408
Melaka	1,715
Terengganu	1,870
Perlis	311
WP Labuan	134
WP Putrajaya	31
Total SMEs	54,505

Source: Department of Statistics Malaysia (DOSM), (2023).

Distribution of MSMEs in the Manufacturing Sector by Sub-sector and Size

Based on the distribution of MSMEs in the Manufacturing Sector by Sub-sector and Size, it was shown that MSMEs are mainly in Non-metallic Mineral Products, Basic Metal & Fabricated Metal Products (10,360), followed by Wood Products, Furniture, Paper Products & Printing (9,705), and Food Products (9,169), as illustrated in Table 4.

Table 4: Distribution of SMEs in Manufacturing Sector by Sub-sector and Size

Sub Sector	Micro	Small	Medium	Total MSMEs
Textile & Wearing Apparel, Leather & Related Products	4,408	1,802	114	6,324
Beverages Products & Tobacco Products	307	125	8	440
Wood Products, Furniture, Paper Products & Printing	6,764	2,766	175	9,705
Petroleum, Chemical, Rubber & Plastics	4,292	1,755	111	6,158
Non-metallic Mineral Products, Basic Metal & Fabricated Metal Products	7,221	2,593	186	10,360
Electrical, Electronic & optical Products	3,426	1,401	88	4,915
Transport Equipment, Other Manufacturing & Repair	5,181	2,119	134	7,434
Food Products	6,391	2,613	165	9,169
Total	37,990	15,534	981	54,505

Source: SME Census 2023 by the Department of Statistics Malaysia (DOSM), (2023).

MSME GDP and Overall GDP Growth by Sector

MSMEs' value-added MSMEs for the manufacturing sector recorded significant growth of 8.1 percent in 2022 from 6.0 percent in the previous year, as illustrated in Table 5.

Table 5: MSME GDP and Overall GDP Growth by Sector

	2021 SME GDP	2022 SME GDP	2022 Overall GDP
Agriculture	2.0	-0.6	0.1
Mining & Quarrying	-3.6	8.0	2.6
Manufacturing	8.4	6.0	8.1
Construction	-4.4	4.9	5.0
Services	-0.6	16.4	10.9
Total	1.3	11.6	8.7

Source: Department of Statistics Malaysia (DOSM), (2023).

Key Determinants of MSME Performance

Various internal and external factors affect the performance of MSMEs in the manufacturing sector. This section critically reviews the recent literature on the key determinants of MSME performance in Malaysia, including technological capability, managerial competence, financial access, supply chain integration, and government support.

i) Technological Capability

Technology adoption is a crucial driver of MSME manufacturing performance. According to Hanaysha and Alzoubi (2022), implementing automation, cloud computing, and innovative manufacturing tools can enhance productivity and cost efficiency in the manufacturing sector. In addition, Kumar (2021) finds that digitally enabled firms exhibit higher customer responsiveness and faster innovation cycles than non-digitally enabled firms. However, Yahaya and Nadarajah (2023) mentioned that digital readiness remains low among Malaysian MSMEs because of inadequate infrastructure and technical expertise.

ii) Managerial Competence

Business owners' and managers' competencies significantly affect organizational performance. Loo et. al. (2023) emphasized the role of strategic thinking and leadership in navigating market uncertainties. Similarly, Hanaysha and Alzoubi (2022) found a positive correlation between managerial training and operational efficiency. Nonetheless, many MSMEs lack access to structured capacity-building programs.

iii) Financial Access

Access to finance continues to be a significant barrier for MSMEs in India (Kumar, 2021). highlighted that limited credit facilities constrain expansion and technological upgrading. Although financial assistance is available through government agencies such as Bank Negara Malaysia and SME Corp., bureaucratic processes often hinder timely access to these funds (Sahu & Mani, 2025).

iv) Supply Chain Integration

Effective supply chain relationships enhance resilience and performance. Firms that collaborate with suppliers and customers achieve better product quality and delivery. Digital supply chain systems further improve inventory control and lead time reduction (Lim et al., 2024).

v) Government Support

Government policies and support play vital roles in shaping MSME performance. According to SME Corp Malaysia (2023), numerous schemes exist to support MSMEs, including tax incentives, digital grants, and export promotion programs. However, awareness and uptake of these technologies remain low. Furthermore, Seow et. al. (2021) recommend improving outreach and reducing administrative burdens to increase policy effectiveness.

5. Conclusion

This study presents a comprehensive analysis of the performance of Malaysia's micro, small, and medium enterprises (MSMEs), with particular attention to the manufacturing sector. MSMEs are the foundation of the economy and make major contributions to GDP, employment, and productivity. Despite their vital role, many firms face persistent challenges, including limited access to finance, slow technological adoption, inadequate managerial capacity, bureaucratic inefficiencies, and policy shortcomings. Their growth, creativity, and ability to compete globally are all being hindered by these obstacles. Developments in supporting MSMEs have been made possible by government initiatives like training, financial support, and digitalization policies. But the efficacy of these measures is uneven among regions and business types. There is a variation in the degree to which the adoption of digital technology has been a driver for improved MSME performance. This study identifies five core determinants of MSME success: technological capability, managerial competence, access to finance, supply chain integration, and government support. Strengthening these areas is crucial for enhancing the resilience and competitiveness of the industry. In summary, boosting MSME performance, particularly in manufacturing, requires coordinated efforts from policymakers, industry players, and enterprise leaders. By strengthening its supply chain networks, investing in talent and technology, and improving institutional frameworks, Malaysia can realize the full potential of its MSME sector.

References

- AlQersh, N. A., Ali, G. A., Al-Rejal, H. A., Al-Ganad, A., Farhan Busenan, E., & Ahmed, A. (2023). The power of strategic knowledge management in the relationship between innovation and the performance of large manufacturing firms in Malaysia. *International Journal of Innovation Science*, 15(1), 19-41.
- Chen, L., Feldmann, A., & Tang, O. (2015). The relationship between disclosures of corporate social performance and financial performance: Evidence from GRI reports in the manufacturing industry. *International Journal of Production Economics*, 170, 445-456.
- Department of Statistics Malaysia (DOSM). (2023). *Micro, Small, and Medium Enterprises (MSMEs)*, 2023. Economic Census Portal (2022). Retrieved 18 June 2025, from [dosm.gov.my. https://economiccensus.dosm.gov.my/ec2/index.php/en/home](https://economiccensus.dosm.gov.my/ec2/index.php/en/home)
- Efrat, K., Hughes, P., Nemkova, E., Souchon, A. L., & Sy-Changco, J. (2018). Leveraging Dynamic export capabilities for competitive advantage and performance consequences: Evidence from China. *Journal*

- of Business Research, 84, 114-124.
- Gomez-Mejia, L. R., Berrone, P., & Franco-Santos, M. (2014). *Compensation and organizational performance: Theory, research, and practice*. Routledge.
- Hanaysha, J. R., & Alzoubi, H. M. (2022). The effect of digital supply chain on organizational performance: An empirical study in the Malaysian manufacturing industry. *Uncertain Supply Chain Management*, 10(2), 495-510.
- Hanifah, H., Abdul Halim, H., Ahmad, N. H., & Vafaei-Zadeh, A. (2019). Emanating the key factors of innovation performance: leveraging the innovation culture among SMEs in Malaysia. *Journal of Asia Business Studies*, 13(4), 559-587.
- Khan, H. U., Ahmad, S., & Abdollahian, M. (2013). Supply chain technology acceptance, adoption, and possible challenges: A case study of service organizations of Saudi Arabia. *Proceedings of the 2013 10th International Conference on Information Technology: New Generations, ITNG 2013*, 590-595.
- Kumar, B. S. (2021). Effect of Strategic Management Practices on Performance of Pharmaceutical Companies in India. *Journal of Strategic Management*, 5(3), 44-54.
- Laitinen, E. K. (2002). A dynamic performance measurement system: evidence from small Finnish technology companies. *Scandinavian journal of management*, 18(1), 65-99.
- Lavinsaa, P., Somu, H., Ahmad, N. H., Joshi, J. P., & Wahid, N. A. (2020, May). Industry 4.0 technology re-engineering impacts on strategy agility and SME competitiveness in Malaysia. In *First ASEAN Business, Environment, and Technology Symposium (ABEATS 2019)* (pp. 52-55). Atlantis Press.
- Lee, K.-L., Hassan, M. G., & Udin, Z. M. (2016). The Contribution of Supply Chain Technology in the Malaysian Textile and Apparel Industry. *Journal of Advanced Management Science*.
- Lim, S. T., Safiyuddin, F. S., Haque, R., Noordin, M., Binti, N., Manickam, L., & Hakimi, N. B. (2024). Exploring the Impact of Marketing Mix Product Transformation Strategies in Glove Manufacturing Industries: A Case Study. *Pakistan Journal of Life & Social Sciences*, 22(2).
- Loo, M. K., Ramachandran, S., & Raja Yusof, R. N. (2023). Unleashing the potential: Enhancing technology adoption and innovation for micro, small, and medium-sized enterprises (MSMEs). *Cogent Economics & Finance*, 11(2), 2267748.
- National SME Development Council (NSDC), (2023). *Economic Performance and Outlook 2022/2023*. In smecorp.gov.my. SME Corporation Malaysia. Retrieved 17 June 2025, from https://smecorp.gov.my/images/Publication/MSME_Insights/2022_23/3Full%20Report.pdf
- Ramachandran, S., Chandramohan, B. P., & Taibangnganbi, N. (2024). Integrating Indian MSMEs Into Global Value Chain: Determinants and Challenges. *Library Progress International*, 44(3), 16733-16747.
- Sahu, B., & Mani, S. (2025). A Qualitative study on Access to finance challenges faced by MSME entrepreneurs. *International Journal of Environmental Sciences*, 11(4s), 791-795.
- Seow, A. N., Choong, Y. O., & Ramayah, T. (2021). Small and medium-sized enterprises' business performance in the tourism industry: the mediating role of innovative practice and moderating role of government support. *Asian Journal of Technology Innovation*, 29(2), 283-303.
- SME Corp Malaysia. (2023). *SME Annual Report 2022/23*. Retrieved 18 June 2025, <https://www.smecorp.gov.my>
- SME Corp. Malaysia (2023). *Guideline For SME Definition*. smecorp.gov.my. Retrieved 17 June 2025, from SME Corporation Malaysia - SME Definition
- Veeraya, S., Raman, M., Gopinathan, S., & Singh, J. (2024). Digital Business Transformation of Malaysian Small and Medium-Sized Enterprises: A Review on Digital Leadership and Digital Culture. *International Journal of Organizational Leadership*, 13(4), 703-721.
- Yahaya, H. D., & Nadarajah, G. (2023). Determining key factors influencing SMEs' performance: A systematic literature review and experts' verification. *Cogent Business & Management*, 10(3). <https://doi.org/10.1080/23311975.2023.2251195>