

**PERFORMANCE CRITERIA MODEL FOR WOMEN-OWNED SMES
USING ANALYTICAL HIERARCHY PROCESS AND LOCATIONAL
CHARACTERISTICS APPROACH: A CASE STUDY IN BATU PAHAT,
JOHOR.**

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A thesis submitted in fulfilment of the requirement for the award of the Degree of
Master of Science in Technology Management

Faculty of Technology Management and Business
Universiti Tun Hussein Onn Malaysia

JULY 2023

DEDICATION

Special dedications for my beloved parents and husband, who have always supported me through ups and down during this extraterrestrial journey, my family in-law, my daughter, my sisters, my friends, my big families and to all important souls in my life.



ACKNOWLEDGEMENT

First and foremost, Alhamdulillah praises Almighty Allah S.W.T for His shower of blessings and for granting me the capability to complete my master's degree thesis victoriously. This thesis would not have been completed without the support and assistance of many people.

I would like to express my sincere appreciation to my research supervisor, Dr Umi Kartini Binti Rashid and co-supervisor, Gs. Dr Edie Ezwan Bin Mohd Safian for their valuable guidance, support, motivation, opinions and time throughout this research journey.

I am deeply grateful to my husband, Mohammad Farhan Bin Mohammad Faisol, who has been a tremendous encouragement and a real source of inspiration. Without his unconditional support, love, sacrifice and tolerance, together with the love of my daughter Nur Farwa Zaynabi, the research would be truly meaningless.

Besides, I would like to send my highest appreciation to my lovely parents, siblings and family-in-law for their support and love on every challenge I passed through during my research journey.

Lastly, I would also like to thank my lovely friends who always support and care about completing my study. I want to show my sincere gratitude to my best friend, Ms Adibah Abdul Kadir and Ms Shafeeka Fadlikh Zamri, who always motivated me and encouraged me throughout this journey. Thank you.

ABSTRACT

Small and Medium Enterprises (SMEs) are seen as an important segment in the economic composition of a country and an essential engine for fostering innovation, growth and prosperity. However, due to the COVID-19 pandemic, the performance of Gross Domestic Product (GDP) in Malaysia was declining, and an unprecedented crisis for businesses. This scenario has also worsened the performance of women-owned SMEs, coupled with poor individual characteristics, including entrepreneurial competencies (EC) and entrepreneurial orientation (EO). Several researchers had conducted studies on these two elements of women-owned SMEs business performance yet overlooked the measurement of ranking the effective criteria and sub-criteria, which were the most critical factors contributing to their performance. Consequently, the utmost purpose of this research was to propose a model of performance index for women-owned SMEs by integrating the modified Analytical Hierarchy Process (AHP) approach and Geographic Information Systems (GIS) techniques in line with the identified gaps. Using quota sampling techniques, survey questionnaires were distributed among 140 respondents in 14 subdistricts (Mukim) in Batu Pahat, Johor. Only 128 sets of questionnaires were usable for data analysis, showing a 91.4% valid response rate. The findings indicated that EC and EO ranking criteria were equally crucial to the women-owned SMEs performance. Both ranking criteria of EC and EO were then integrated with the elements of locational characteristics based on the measurement of distance matrix by using GIS for capturing the index accessibility of women-owned SMEs performance. The findings of this study benefited the decision-makers by determining which criteria of women-owned SMEs contributed the most in the local context and identifying the loopholes in achieving the index model that can be used as guidelines in gauging the women-owned SMEs towards their business performance.

ABSTRAK

Perusahaan Kecil dan Sederhana (PKS) merupakan segmen penting dalam komposisi ekonomi sesebuah negara dan sebagai mesin untuk memupuk inovasi, pertumbuhan dan kemakmuran. Namun, disebabkan oleh pandemik COVID-19, Keluaran Dalam Negara Kasar (KDNK) di Malaysia menurun dan krisis ini tidak pernah berlaku dalam sektor perniagaan. Tambahan lagi, senario ini turut memburukkan prestasi PKS milik wanita, ditambah pula dengan ciri individu yang lemah termasuk kecekapan keusahawanan (EC) dan orientasi keusahawanan (EO). Beberapa penyelidik telah menjalankan kajian mengenai kedua-dua elemen ini terhadap prestasi perniagaan PKS milik wanita, namun terlepas pandang terhadap pengukuran kedudukan kriteria dan subkriteria yang berkesan, yang merupakan faktor paling kritikal yang menyumbang kepada prestasi PKS milik mereka. Oleh itu, kajian ini telah mencadangkan Model Indeks Prestasi untuk PKS milik wanita dengan menggabungkan teknik Proses Hierarki Analitik (*AHP*) dan Sistem Maklumat Geografi (*GIS*), selaras dengan jurang yang dikenal pasti. 140 soal selidik telah diedarkan kepada 14 Mukim di daerah Batu Pahat, Johor dengan menggunakan kaedah persampelan kuota dan sebanyak 128 soal selidik dapat digunakan untuk menganalisis data serta menunjukkan respon yang sah sebanyak 91.4%. Hasil kajian menunjukkan bahawa kriteria peringkat *EC* dan *EO* sama pentingnya dengan prestasi PKS milik wanita. Kemudian, kedua-dua kriteria peringkat *EC* dan *EO* digabungkan dengan elemen ciri lokasi berdasarkan pengukuran matriks jarak dengan menggunakan *GIS* supaya dapat mengenalpasti kebolehcapaian lokasi prestasi PKS milik wanita. Hasil kajian ini memudahkan pembuat keputusan untuk menentukan kriteria yang paling banyak menyumbang kepada prestasi milik PKS wanita serta model indeks yang dapat digunakan sebagai panduan dalam mengukur prestasi perniagaan mereka.

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LIST OF SYMBOLS AND ABBREVIATIONS

AHP	-	Analytical Hierarchy Process
ANP	-	Analytical Network Process
CGC	-	Credit Guarantee Corporation Malaysia Berhad
CI	-	Consistency Index
CR	-	Consistency Ratio
DOSM	-	Department of Statistics Malaysia
EC	-	Entrepreneurial Competencies
EO	-	Entrepreneurial Orientation
FEM	-	Federation of Women Entrepreneurs Association Malaysia
GDP	-	Gross Domestic Product
GIS	-	Geographic Information Systems
GP	-	Goal Programming
ICT	-	Information and Communication Technology
IPMA	-	Importance-Performance Map Analysis
KM	-	Kilometer
MADM	-	Multi-Attribute Decision Making
MAUT	-	Multi-Attribute Utility Theory
MCDM	-	Multi-criteria Decision Making
MDEC	-	Malaysia Digital Economy Corporation
MEDAC	-	Ministry of Entrepreneur Development and Cooperative
MSMEs	-	Micro, Small and Medium Enterprises
NAWEM	-	National Association of Women Entrepreneurs of Malaysia
NEP	-	The National Entrepreneurship Policy
PCA	-	Principle Component Analysis
R&R	-	Rest and Recreational Area

RBV	-	Resource Based-View
RI	-	Random Consistency Index
SMEs	-	Small Medium Enterprise
SMIDEC	-	Small and Medium Industries Development Corporation
SPSS	-	The Statistical Package for Social Science
TOPSIS	-	Technique for Order Preferences by Similarity to Ideal Solutions
USAHANITA	-	Persatuan Usahawan Wanita Bumiputera
WEP	-	Women Entrepreneurship Programming
λ_{\max}	-	The Right Eigenvector corresponding to the Largest Eigenvalue



PTTA UTHM
PERPUSTAKAAN TUNKU TUN AMINAH

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter provided insights into the introduction and research background of this research. This research's utmost focus was on the performance of women-owned Small Medium Enterprises (SMEs) and the method used to integrate the index model of women-owned SMEs. Section 1.2 explained the research background of this research, followed by Section 1.3, where the problem statements of this study were highlighted. Then, Section 1.4 and Section 1.5 listed the research questions and objectives. The research scope and significance were explained in Section 1.6 and Section 1.7 correspondingly. Next, Section 1.8 specified the definition of the concept involved in this research, continued with Section 1.9, which portrayed the thesis organization of this research. Finally, Section 1.10 was the summary of this chapter.

1.2 Research Background

Today's world is changing at a startling pace. Globally, the business world is facing many challenges, and entrepreneurs need a more innovative way of thinking that enables them to act faster and create more new business opportunities (Maas, 2019). In Malaysia, the Ministry of Entrepreneur Development and Cooperatives (MEDAC) has launched The National Entrepreneurship Policy (NEP) 2030 to continuously

encourage entrepreneurs by increasing the number of qualified, viable and resilient entrepreneurs, as well as to enhance the capabilities of local entrepreneurs, particularly in the Small and Medium Enterprise (SME) sector, in line with the government's shared prosperity concept (SME Corp. Malaysia, 2019a). Ministry of Entrepreneur Development and Cooperatives (MEDAC), in line with the functions of the Ministry, formulated the first policy of NEP 2030 to develop an inclusive and competitive entrepreneurial community, mainly in the SMEs sector, as well as to encourage the development of the B40 group and social entrepreneurs (SME Corp. Malaysia, 2019a).

Since the late 1990s, SMEs have played an essential role in increasing the economy of Malaysia (Chin & Lim, 2018). Usually, the growth of SMEs Gross Domestic Product (GDP) was higher than Malaysia's GDP. However, the growth of SMEs registered a negative 7.3 per cent in 2020, which was lower than Malaysia's GDP for the first time in over 17 years since 2003 that Chief Statistician Malaysia mentioned, Datuk Seri Dr Mohd Uzir Mahidin (Department of Statistic Malaysia, 2019). The contribution of SMEs to the Malaysian GDP then eased to 38.2 per cent in 2020, with a value-added of RM512.8 billion against 38.9 per cent or RM553.5 billion in the preceding year due to recent issues such as the health crisis caused by the COVID-19 pandemic in 2020 (Department of Statistic Malaysia, 2020). More specifically, the performance of all sectors of the economy has declined with the implementation of the Movement Control Order (MCO) across the country, one of the ways to fight the spread of COVID-19 (Che Omar *et al.*, 2020). Table 1.1 shows Malaysia's GDP, SMEs value-added, percentage share of Malaysia's GDP and annual percentage change of SMEs in 2019-2020.

Table 1.1: Malaysia's GDP, Value Added, Percentage Share of Malaysia's GDP and Annual Percentage Change of SMEs in 2019-2020.
(Department of Statistics Malaysia, 2020)

	2019	2020
Malaysia's GDP (RM billion)	1424.3	1343.9
Value added (RM billion)	553.5	512.8
Share to Malaysia GDP (%)	38.9	38.2
Annual Percentage Change (%)	5.9	-7.3

The statistics of SMEs were vital in measuring the performance of SMEs for assisting future developments and supporting the overall economy in Malaysia (Department of Statistics Malaysia, 2017). The Minister of Entrepreneur Development and Cooperative (MEDAC) emphasized the importance of SMEs in the economies to continue fostering, strengthening, and deepening bilateral economic, trade and investment linkages (Bernama, 2022). Moreover, the government highlighted in the Twelfth Malaysia Plan 2021-2025 to focus on restoring the growth momentum of key economic sectors and propelling strategic and high-impact industries, as well as micro, small and medium enterprises (MSMEs), to achieve the SMEs GDP's 45 per cent by 2025 (Economic Planning Unit of The Malaysian Government, 2021).

According to the Department of Statistics Malaysia (2022), SMEs created 97.4 per cent or 1, 226,494 business establishments in Malaysia which are the backbone of the economy. The services sector recorded the highest level, which included 1,028,403 or 83.8 per cent of the total SMEs, followed by the construction sector, which obtained 98,274 or 8.0 per cent. Then, the total of SMEs in the manufacturing sector carried 71,612 or 5.8 per cent. At the same time, the agriculture sector recorded 23,633 or 1.9 per cent, and finally, mining and quarrying recorded only 4,572 or 0.4 per cent of total SMEs in Malaysia. Additionally, most of the SMEs in Malaysia were micro-enterprises (964,495 or 78.6 per cent), followed by small enterprises (242,540 or 19.8 per cent) and medium enterprises (19,459 or 1.6 per cent). Figure 1.1 shows the number of the establishment of SMEs by sector and size.

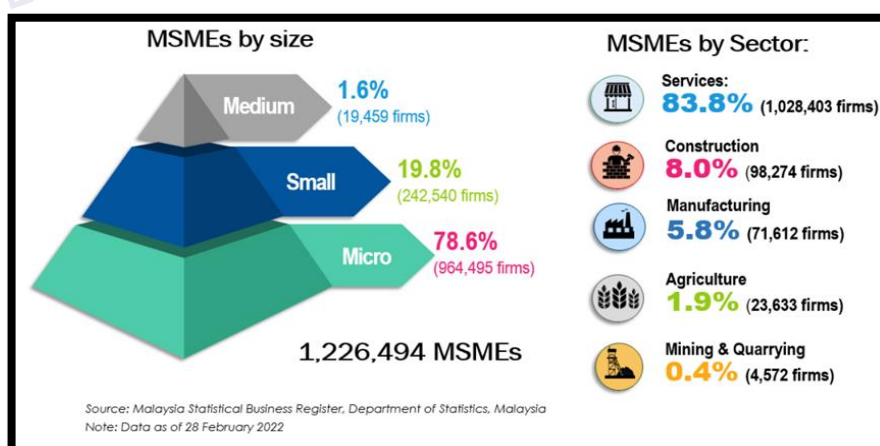


Figure 1.1: The Number of Establishment of SMEs by Sector and Size (Department Statistics Malaysia, 2022)

Although the number of SME entrepreneurs was high, the SME's contribution to the economy was still low, and the country has yet to exploit well to contribute a lot to economic development (Bernama, 2019b). The contribution of SMEs is becoming worse in 2020 due to health crises caused by COVID-19 impacted several business operations and supply chains (Mahat *et al.*, 2021). According to Bartik *et al.* (2020), the immediate effect of the crisis had caused mass layoffs and closures of businesses by up to 43 per cent, and employment had fallen by 40 per cent. Ministry of Entrepreneurship Development and Cooperatives (MEDAC) in The Star Online revealed that 32,469 total SMEs have folded since March 2020. Moreover, according to the Companies Commission of Malaysia (SSM), 9,675 SMEs shut down their operations during the first phase of MCO, and 22,794 SMEs shut down during the recovery MCO phase (Tan *et al.*, 2020).

In other cases, during this Industrial 4.0 Revolution era (IR4.0), regardless of gender, entrepreneurs ought to look forward to boosting economic growth and developing networks toward becoming a high-income, sustainable and inclusive economy (Yusuff *et al.*, 2016). According to Bernama (2021b), MEDAC was striving for more women entrepreneurs to master e-commerce skills through the Women Netpreneur programme organized by its agency, SME Corp Malaysia. According to Deputy Minister Datuk Mas Ermieyati Samsudin of MEDAC, in these challenging times, women entrepreneurs need to be prepared for digital transformation (Bernama, 2021a).

As reported by the Department of Statistics Malaysia (DOSM) in 2017, from a total of 907,065 businesses that were operating in Malaysia, 186,930 accounted for women-owned SMEs, which showed that women entrepreneurs wholly owned only 20.6 per cent of total SMEs in Malaysia with an annual growth rate of 8.00 per cent (DOSM, 2017). Therefore, the roles of women-owned SMEs were important in Malaysia's economic growth (Bernama, 2019c). The Prime Minister, Datuk Seri Ismail Sabri, added that women entrepreneurs needed to be more creative in switching to online methods, particularly in bringing the businesses to the national and global level, and the product packaging should also be more attractive (Bernama, 2021b).

According to Isa *et al.* (2019), the importance of women entrepreneurs has contributed to the world's economic development, including Malaysia. In Malaysia, even though the government had spent RM2.3 billion on women entrepreneurs in

2018, the women entrepreneurs' contribution was significantly lower than males (Bernama, 2019a). Figure 1.4 shows the increase in women entrepreneurs' performance from 2015 (9.7 per cent) to 2017 (25.9 per cent) due to several NGOs support to women entrepreneurs to encourage their business ventures as well as promote job opportunities for employees (Chipfunde *et al.*, 2021). In contrast, the performance decreased from 2017 (25.9 per cent) to 2019 (11.6 per cent). This is due to several factors such as poor individual characteristics, lack of financial support, family support, gender inequality among SME investors and mentorship, which hinders Malaysia's economic growth and the SME sector (Chipfunde *et al.*, 2021).

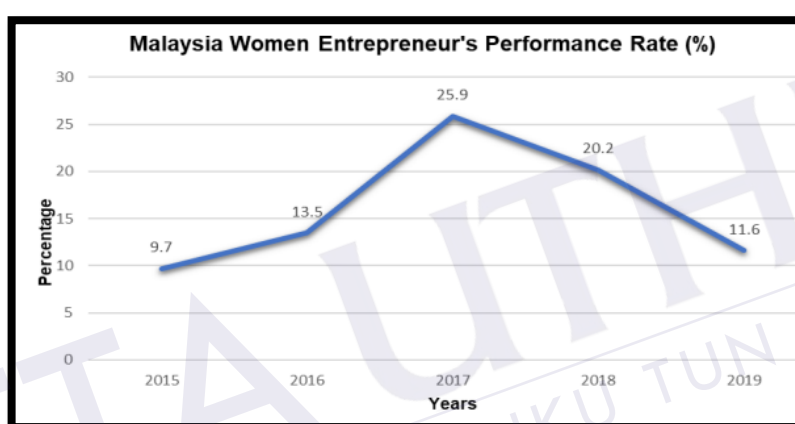


Figure 1.2: Malaysia Women Entrepreneur's Performance Rate (Department Statistics Malaysia 2019)

Amidst the definition of success among entrepreneurs, women described success in terms of children, satisfaction in works reputation, ability to choose a daily activity, their contribution to the community and their overall perceived quality of life (Fenwick & Hutton, 2000). From the perspective of an old fashion society, women are individuals working at home, taking care of their children and carrying out household obligations as their primary duty (Isa *et al.*, 2019). Other than that, previous research on the success factors of women entrepreneurs in the Southern Region of Malaysia found that family support, social ties, and internal motivation are the significant elements affecting success among them (Alam *et al.*, 2011). Therefore, supporting bodies, organizations like the government, Non-Government Organizations (NGOs), and financial institutions play a crucial role in developing a new venture for the growth of women's business (Sucheta, 2016).

Even though various studies had been conducted to investigate women entrepreneurs in Malaysia, there was still a lack of studies on a detailed explanation of how women entrepreneurs could sustain their business ventures and become more successful (Rashid, 2017). Previous studies had conducted to look at the relationships between the factors towards women-owned SMEs business performance by using Statistical Package of Social Science (SPSS) and Partial Least Square (PLS) (Rashid, 2017; Al Mamun *et al.*, 2018). Also supported by Tailab (2020), the extend application of PLS using an importance-performance Map Analysis (IPMA) that to determines only the priority factors and overlooked the pairwise comparison and ranking criteria. This application is tied on certain requirements which relate to the measurement scales, variable coding, indicator weights estimates and presumes the linear relationships (Hair *et al.*, 2016). However, this study used the Analytic Hierarchy Process (AHP) method to rank the criteria influencing women-owned SMEs performance. AHP was a multi-criteria decision-making approach (MCDM) that Thomas Saaty first introduced in the 1970s, and decision-makers have widely used it and researchers (Saaty, 1980) in a variety of fields such as business, government, industry, education, health and others (Aziz, Sorooshian, & Mahmud, 2016).

Besides, the AHP method was widely accepted and has also created considerable criticism for theoretical and practical reasons (Triantaphyllou & H. Mann, 1995). The researcher conducted this study using the AHP method because this method focused on prioritizing the selection criteria and distinguishing the more important ones from the less important ones (Aziz *et al.*, 2016) to identify the most effective criteria that influence women-owned SMEs performance. In addition, based on the results of AHP, the application of the Geographic Information System (GIS) was used to pan, zoom, turn layers, and, more importantly, query and view attribute data linked to mapped objects (Akhil *et al.*, 2014). In this study, GIS was used to calibrate the relative distance matrix between each Mukim for women-owned SMEs in Batu Pahat with the locational characteristics because the geographical location nowadays comes with a challenge for both urban and rural-based SMEs. A study conducted by 87 Australian SMEs found that the most important location factor or accessibility for owner-managers were being close to the central business district (CBD) and having direct access to the main road (Kupke & Pearce, 1998). Also supported with the most previous studies conducted on the importance of women

SMEs in economic growth and their importance to local, regional and national economic development policies in many parts of the globe gives added relevance to enquiries into the location decisions of SMEs and its influence on their performance (Nwokocha, 2022). This is because the decision on where to locate a business determines the availability and utilization of input materials, their collection points, processing point and transfer of outputs to the market. It also determines the accessibility of raw material, labor, market and transportation which vary in their significance and influence on the SMEs. Therefore, GIS application based on the locational characteristics will help the women-owned SMEs to decide and ensure the appropriate location of their business in order to improve the performance as well as achieve GDP, Malaysia. Batu Pahat district had been chosen due to the Movement Control Order (MCO), a proactive measure taken by the Malaysian government to control the spread of COVID-19 (Bernama, 2020).

1.3 Problem Statement

Nowadays, the newspaper and social media are keeping up with the threats and updates on the impact on the SMEs sectors due to the pandemic crisis, which forces all the businesses to reevaluate and restructure their business model from retail, manufacturing and service providers to switch with the digital economy (Vaghefi & Yap, 2021). Notwithstanding, the involvement of women-owned businesses was realized to influence the modernizing growing economy, especially in a developing country. Today, women entrepreneurs are vital to the economic growth of most countries, including Malaysia (Isa *et al.*, 2019), despite the hit and impact of the pandemic that strikes this country, similar to the rest of the places in the world (Mahat *et al.*, 2021).

According to the President of the Association of Bumiputera Women in Business and Profession, better known as Peniagawati, Datuk Azlin Ahmad Shaharbi reported that more than 190,000 women entrepreneurs were significantly affected by the pandemic (Ishak, 2020). Previous research mentioned that women entrepreneurs are not encouraged, supported, and financed to promote their skills and strategies for Malaysia's development, and these issues are burdens due to a lack of cultural values for gender equity in terms of a business venture and lack of family support which

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