

Exploring the Influence of Management Capabilities on Halal Cosmetics Supply Chain Agility Practices and Organizational Performance in Malaysia Halal Cosmetics Sector

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ABSTRACT

The global halal cosmetics sector has emerged as a high-growth segment within the halal economy, yet its supply chain dynamics remain significantly under-explored compared to the food and pharmaceutical sectors. In the current landscape, manufacturers face increasing pressure due to tightening global regulations such as the mandatory halal certification requirements slated for 2026 and rising consumer demand for ingredient transparency and Shariah-compliant formulations. This study examines the relationship between management capabilities, halal cosmetic supply chain agility practices (HCSCAP), financial performance, and operational performance. Using a quantitative approach, data were collected from 205 manufacturers registered with the National Pharmaceutical Regulatory Agency (NPRA) via an online survey. The results indicate a significant positive relationship between management capabilities and HCSCA. Furthermore, HCSCA was found to positively influence both financial and operational performance. These findings suggest that developing robust internal management competencies is essential for fostering agile supply chains capable of navigating the complexities of halal compliance. The study provides critical implications for manufacturers, highlighting that the implementation of effective management practices is a primary driver for enhancing organizational performance in the competitive halal beauty market.

Keywords: Halal Cosmetics Supply Chain, Management Capabilities, Supply Chain Agility, Financial performance, Operational Performance

INTRODUCTION

The global halal industry has experienced significant growth and diversification in recent years, expanding beyond traditional food products to encompass sectors such as pharmaceuticals, cosmetics, health products, toiletries, medical devices, and services like logistics, marketing, and finance. As stated by Africa Islamic Economic Foundation (2020), this expansion reflects the increasing demand for halal-certified products and services among the world's approximately 1.9 billion Muslims. In 2021, the global halal market was valued at approximately USD2 trillion, with projections suggesting it could reach USD3.9 trillion by 2027. This growth is driven by factors such as the rising Muslim population, increasing disposable incomes, and heightened awareness of halal standards (Nor et al., 2023). The halal industry encompasses a diverse ecosystem of product, service, and extended sectors (Muhammad Aswad, 2022). The core product sectors comprise health products, cosmetics, and pharmaceuticals, which are supported by a robust service infrastructure including specialized marketing, packaging, manufacturing, and logistics. Furthermore, the industry's influence reaches into extended sectors such as hospitality management, fashion, and tourism, highlighting the comprehensive nature of the halal economy.

Halal encompasses the entire process from production to the final product or service delivered to consumers. It is not limited to meat, poultry, or food but also includes lifestyle aspects such as personal care, cosmetics, and health products (M. Q. Ali & Ahmad, 2023). Within the multifaceted halal industry, the cosmetics sector stands out as a critical product pillar, deeply integrated with essential service functions like supply chain and branding. Study by Shah et al., (2022) mention that the halal cosmetic industry is growing rapidly and has become a major focus for Muslims worldwide. Muslim consumers prioritize being aware of the ingredients and contents of cosmetics, choosing only products that meet their requirements and provide them with a sense of assurance and confidence.

The academic research on the halal cosmetics supply chain is relatively recent, emerging over the past decade. While previous studies have explored halal pharmaceuticals and cosmetics, most have primarily focused on aspects such as halal transportation and warehousing among manufacturers in Malaysia (Ngah et al., 2021), as well as ingredients, certification, and consumer behaviour at an individual level (Putri, 2019). Consequently, there is a notable scarcity of empirical literature investigating the role of management capabilities as a foundational component of halal cosmetics supply chain agility practices (HCSCAP). Therefore, this study aims to determine the relationship between the management capabilities as the elements of HCSCAP with the operational and financial performance.

The remainder of this paper is organized into five distinct sections. Section one introduces the research background and objectives. Section two presents a comprehensive literature review synthesized around the key variables. The third section outlines the research methodology, specifically detailing the sampling design and data acquisition procedures. Section four presents the results and interprets the structural model within the context of current discourse. Finally, the conclusion summarizes the study's primary contributions and identifies directions for future research.

LITERATURE REVIEW

Financial Performance

According to Fatihudin et al. (2018), financial performance is defined as the accomplishment in managing its finances over a particular period, covering the collection and allocation of finance. This is conventionally measured via capital adequacy, liquidity, solvency, efficiency, leverage, and profitability. As stated by Swafford et al. (2008), agility is the strong boundary existing between the company and the market, thereby improving prompt delivery time to the customers. What is more, the concept of financial performance has been widely used in the literature to measure organizational performance (Zainuddin et al., 2017). A study by Urumsah and Puspitasari (2021), highlighted that innovation positively impacted company's financial performance. This is mostly since new product innovation can fulfil consumer need for new or improved products. The study also revealed a positive correlation between halal certification and financial performance. Tieman and Ghazali (2013) argued that halal certification affects purchasing processes. Studies conducted by Verbeke et al. (2013) and Zakaria et al. (2017) revealed that Muslims were willing to pay higher prices for Halal products, thereby enhancing export opportunities. Additionally, managers target the growing awareness of halal products to improve companies' financial performance (Naala et al., 2017). Thus,

Operational Performance

Operational performance is an important non-financial indicator, aligning with metrics such as customer satisfaction, product quality, and market share, as discussed by Argyropoulos et al. (2010). In the current study, assessment of Halal operations hinged on non-financial indicators used by companies. These include productivity, efficiency productivity, delivery performance, and product quality. According to Chan et al. (2017), the agility of a supply chain helps companies improve performance such as operational performance, financial performance, and overall performance of the organizations. Eckstein et al. (2015) further argued that operational performance is positively affected by supply chain agility, since it enables companies to meet the delivery deadlines and ensure the accuracy of services. The supply chain agility concept is booming worldwide and researchers believe that supply chain agility has positive a relationship with different aspects of operational

performance (Acar et al., 2017). Moreover, a study by Blome et al. (2013) found that supply chain agility effectively contributed to performance, responding to both the external and internal supply chain disruptions.

Management Capabilities

According to Amil et al. (2020), management capabilities involve an arrangement of activities carried out within a company to promote effective management. Gardner et al. (2019) defined management capabilities as actions impacting processes within or spanning the totality of the supply chain. Truong et al. (2017), on the other hand, stated that management capabilities help to balance the relationship between forecasting and supply to improve operational performance. Gold and Schleper (2017) stated that improved management practices engender higher company performance and helps to reduce the cost of various activities. What is more, management capabilities assume an important role in realizing a successful project (Iqbal et al., 2015). Thus, management plays an important role in organizational change and assumes accountability and responsibility for managing and designing a company's evolution (Ness et al., 2020). Thus, in general, management practices involve all aspects of the supply chain to ensure the success of the organization's performance.

According to Karagülle and Çemberci (2023), there are four dimensions of management capability: supply chain planning, investment, coordination and control. The development of management capabilities comprises the issues of halal training and operational flexibility. A study by Hashim and Shariff (2016), illustrated that the development of management capabilities is associated with Halal training, which is very important for the growth of human capital in the halal industry. However, to ensure that the development of human capital meets the employment needs, the halal industry must face many problem challenges. Nevertheless, management capabilities involve information and knowledge-sharing between partners, shared partner understanding, and the pursuit of collective goals (Niesten & Jolink, 2015). Based on the discussion above, it can be hypothesized as:

H1: Management capabilities are significantly related to halal supply chain agility practices

Halal Cosmetics Supply Chain Agility

Refer to Fariha et al. (2024), products incorporating ingredients made to enhance beauty, attraction, or bathing and changing appearance without negatively affecting the body's functions, is considered halal. Therefore, the use of halal cosmetics becomes more important, and have increased as a routine, which is very hard to describe when the first cosmetics are used (Mat Jusoh & Panatik, 2016). The halal cosmetics supply chain agility practices (HCSCAP) encompass flexible processes, rapid decision-making, and a culture that embraces change and management innovation in the sphere of halal cosmetics products. This begins from the point of origin to the point of consumption and involves numerous parties, from suppliers to end-users. HCSCAP activities include sourcing, warehousing, transportation, handling of products, inventory management, procurement, marketing and order management. All of these activities must align with the general principles of Sharia law. These processes are needed to adapt to situations that affect the whole supply chain agility process. For example, political issues and disruptions in general (e.g., COVID-19 pandemic) can have a negative impact on HCSCAP.

Empirical evidence suggests that halal supply chain agility has a positive effect on financial performance. It has been argued that the implementation Halal supply chain agility enables companies to penetrate into a large halal market, which increases financial performance (Zailani et al., 2019). A study by Avelar-Sosa et al. (2018) showed that manufacturing agility positively affects financial performance. This was proven by several authors, including Gligor et al. (2015) who stated that agility directly impacts the financial performance of the company, such as return on assets. Additionally, Chan et al. (2017) proposed a positive relationship between agile manufacturing practices and financial performance.

Past studies have thoroughly investigated the relationship between supply chain agility and operational performance. For example, a study by Abdelilah et al. (2021) investigated the antecedents of supply chain agility and its impact on a firm's operational performance. The findings of the study indicated that supply chain agility is positively correlated to the firm's operational performance. A study by Baah et al. (2022) proposed that information sharing, supply chain visibility, collaboration, and agility collectively had direct and indirect

influences on supply chain performance, which led to superior gains, competitiveness, and flexibility. The results indicated that supply chain collaboration and agility had a significant impact on supply chain performance. Similarly, studies by Cadden et al. (2022), Fernandez-Giordano et al., (2021) and Geyi et al. (2020) all converged on the finding of positive impacts of supply chain agility on the operational performance. Granting that, research should further explore supply chain agility and operational performance in the context of halal cosmetics. Building upon the established significance of supply chain agility, the present study attempts to examine the relationship between supply chain agility and operational performance within the Halal cosmetics sector. Hence, these hypotheses are proposed:

H2: Halal cosmetics supply chain agility practices is significantly influence the financial performance.

H3: Halal cosmetics supply chain agility practices is significantly influencing the operational performance.

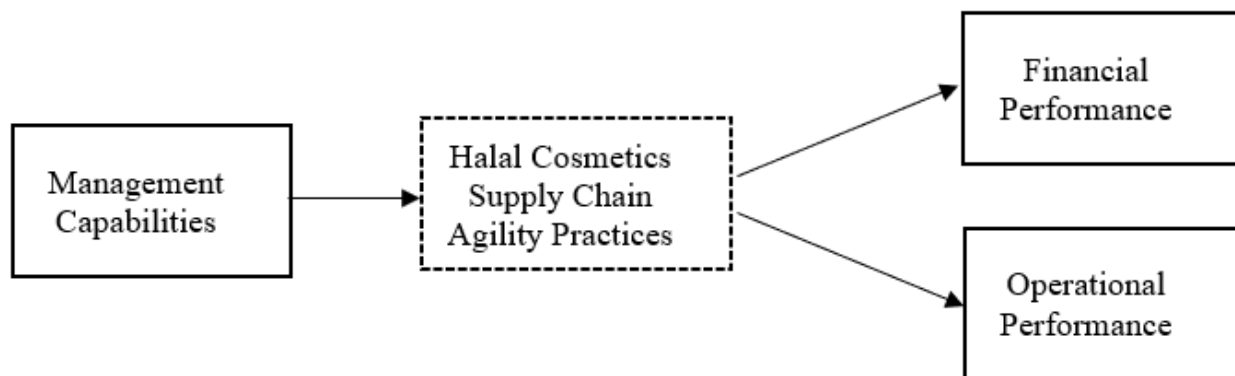


Figure 1: The Conceptual Framework

METHODOLOGY

Research Design

This study adopted a cross-sectional research design, an observational method that examines data collected from a population of cosmetics manufacturer that registered with National Pharmaceutical Regulatory Agency (NPRA). The design was selected because it allows several variables to be examined simultaneously in a more efficient and economical manner. In this study, data were gathered through questionnaires, which are less time consuming and easier to manage to a larger group of respondents, particularly through online platforms. Compared to a longitudinal design, which involves repeated data collection over a longer duration, a cross-sectional approach is more suitable in terms of time constraints, research cost, and ease of managing respondents (Maier et al., 2023). In addition, this design is appropriate for examining relationships and patterns among variables within a particular population at a given time.

Sampling and Data Collection

The present study was conducted in Malaysia by employing online questionnaire as the primary data collection instrument. Participants were contacted and requested to complete the questionnaire, with a total of 205 manufacturer that registered with National Pharmaceutical Regulatory Agency (NPRA). According to the finding, analysis of the data revealed that the highest ownership was held by private limited organizations, with a frequency of 112 (54.6%) followed by public limited organization, with a frequency of 45 (22.0%). Most manufacturer reported having fewer than 100 employees, accounting for 167 (81.4%), while 32 (15.6%) manufacturers indicated having between 100 and 500 employees, and only six manufacturers (3.0%) reported having between 501 to 1000 employees. In regard to market focus, 112 companies (54.6%) have concentrated their efforts on the domestic market, followed by 44 (21.4%) companies targeting multinational markets, and 49 (24.0%) companies catering to both domestic and international markets. Regarding the duration of operation,



most of the manufacturer have been operational between six to 10 years. This was followed by 11 to 20 years with 83 (40.5%) manufacturers and 77 (37.5%) manufacturers have operated between 11 to 20 years. There were 125 (61.0%) organizations located in Selangor, 17 (8.3%) were situated in Pulau Pinang, and 14 (6.8%) in Kedah. Despite these aforementioned trends, the data revealed that a significant number of manufacturers, specifically, 136 (68.1%), generated annual sales ranging from RM1 million to RM10 million. The details of the respondent profiles are presented in Table 1 as follows.

Table 1: Company Profile

Description	Frequency (n=205)	Percentage %
What is the type of ownership of your organization?		
Sole trader	15	7.3
Private limited organization	112	54.6
Partnership	33	16.1
Public limited organization	45	22
How many employees (approximately) does your organization have?		
Less than 100		
100 – 500	167	81.4
501 – 1000	32	15.6
1001 – 2000	6	3.0
More than 2000	-	-
What is the organization level of involvement in the market?		
Domestic market	112	54.6
Multinational market	44	21.4
Regional market	-	-
All market	49	24.0
How long has your organization been in the business?		
Less than 2 years	-	-
2 to 5 years	-	-
6 to 10 years	83	40.5
11 to 20 years	77	37.5
More than 20 years	45	22.0
Where is your organization located?		
Selangor	125	61.0
Kuala Lumpur	10	4.9
Kedah	14	6.8
Johor	14	6.8
N. Sembilan	5	2.4
Terengganu	3	1.5
Pahang	-	-
Perak	3	1.5
Kelantan	10	4.9
Pinang	17	8.3
Melaka	3	1.5
Perlis	1	0.5
W.P. Putrajaya	-	-
What is the annual sales turnover of your organization?		
Less than RM1 million	13	6.3
RM1 million to RM10 million	136	66.3
RM11 million to RM25 million	40	19.5
RM26 million to 50 million	16	7.8

Questionnaire and Measurement

The questionnaire was structured into five respective areas, namely respondent profiles, management capabilities, Halal cosmetics supply chain agility, financial performance and operational performance. The dimensions of each construct were derived from multiple previous studies, including Sayuti (2013), Yadav et al. (2019), Wan Omar (2017), Sweeney and Webb (2007), and Sayuti (2013). All items were appraised on a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The details for each measurement item are attached in Appendix 1. According to Sarstedt & Cheah, (2019), partial least squares structural equation modelling (PLS-SEM) is considered more appropriate than covariance-based structural equation modelling (CB-SEM) for analyzing the research model, owing to the lower requirements in terms of the measurement model, sample size, and residual distributions. The PLS-SEM demonstrated superior performance in evaluating complex models, particularly reflective-formative higher-order components (Sarstedt et al., 2019). The present study employed the SmartPLS 4 software to estimate the study model and fulfil the research objectives.

RESULTS AND DISCUSSION

Common Method Variance (CMV)

CMV analysis is conducted before other analysis tests. As highlighted by Podsakoff et al. (2003), the threshold of exhibiting CMV is less than 50%. For this study CMV was examined using dimension reduction via factor analysis. The finding indicated that the highest variance explained was 30.197%, which did not exceed 50%. Thus, common method bias was not significant in the current study.

Measurement Model

The measurement model is the first phase before analysing the structural model analysis. As mentioned by Ramayah et al. (2018), a factor loading of 0.708 or higher is suggested but a loading between 0.700 to 0.500 is acceptable if the Average Variance Extracted (AVE) and Composite Reliability (CR) are higher. For AVE, the score should be more than 0.500 while CR should be more than 0.700 (Hair et al., 2017). According to the findings in Table 2, the values show that all factor loadings of AVE and CR were above the minimum threshold which meet the requirement. Moreover, the current research also measured discriminant validity by using Heterotrait-Monotrait (HTMT) ratio and according to Gold et al. (2001), the value of HTMT should be less than 0.90. As shown in Table 3, all values for the reflective items passed the threshold value; therefore, discriminant validity of the measurement model was established.

Table 2: Measurement Properties of Reflective Construct

(Factor Loading, AVE and CR)

Constructs	Items	Loading	AVE	CR	Cronbach's Alpha
Management Capabilities	MC4	0.897	0.558	0.896	0.790
	MC5	0.657			
	MC6	0.688			
	MC7	0.883			
	MC8	0.883			
	MC9	0.820			
	MC10	0.762			
HCSCAP	HCSCAP1	0.528	0.510	0.858	0.800
	HCSCAP2	0.740			
	HCSCAP3	0.575			
	HCSCAP4	0.629			
	HCSCAP5	0.901			
	HCSCAP6	0.834			
Operational	OP1	0.988	0.957	0.991	0.989



Performance	OP2	0.988			
	OP3	0.982			
	OP4	0.982			
	OP5	0.950			
Financial Performance	FP1	0.785	0.786	0.862	0.610
	FP2	0.757			
	FP3	0.843			
	FP4	0.734			

Note: HCSCAP (Halal Cosmetics Supply Chain Agility Practices)

Table 3: Discriminant Validity via the HTMT Ratio of Correlation.

	FP	HCSCAP	MC	OP
Financial Performance (FP)				
Halal Cosmetics Supply Chain Agility Practices (HCSAP)	0.335			
Management Capabilities	0.45	0.301		
Operational Performance	0.205	0.406	0.481	

Structural Model

Before the current study measures the path-coefficient to evaluate the hypotheses, collinearity issue is first assessed. As mentioned earlier, the value of VIF should be less than 5 (Hair et al., 2011) in which the constructs for the current study met all the conditions HCSCAP (1.228), IC (2.995). Thus, collinearity issues do not occur in this study. Next, the current study analyses path-coefficient to measure the significance hypotheses by using bootstrapping technique. Based on the finding in Table 4, there are three hypotheses were supported.

Table 4: Path Coefficient Assessment

Hypothesis	R/Ship	Std.Beta	Std.Error	t-value	p-value	Result
H1	MC > HCSCAP	0.325	0.138	3.321**	0.001	Significant
H2	HCSCAP > OP	0.389	0.084	7.538**	0.000	Significant
H3	HCSCAP > FP	0.305	0.121	3.739**	0.000	Significant

Through the analysis of R^2 , the study can identify the model's predictive accuracy where R^2 will calculate the amount of independent construct which can be explained by the dependent construct (Hair et al., 2014). According to Hair et al. (2011), the R^2 value of 0.75 for social sciences study is substantial, 0.50 is moderate and 0.25 is weak. The finding indicates that the value for destination choice is 0.379 which shows a weak level, while satisfaction has the value of 0.513 and revisit intention has 0.566 which is at a moderate level.

Moreover, effect size (f^2) is analysed to measure the effect of independent variables towards the dependent variable. As declared by Cohen (1988), there are four categories of effect size which are substantial (0.35), medium (0.15), small (0.02) and trivial (<0.02). In the current study the antecedent of supply chain agility contributed 63.5% of the variance in halal cosmetics supply chain agility practices. Meanwhile, halal cosmetics supply chain agility practices and all antecedents of supply chain agility comprising of innovation capabilities, management capabilities, supplier capabilities, and government support contributed 43.1% of the variance in financial performance and 33.2% of the variance in operational performance. Table 5 shows the R^2 value for HCSCAP, FP and OP.

Table 5: Level of R^2 Assessment

Construct	Coefficient of Determination (R^2)	Explanatory Power
Financial Performance	0.431	Weak

Halal Cosmetics Supply Chain Agility Practices (HCSCAP)	0.635	Moderate
Operational Performance	0.332	Weak

Finally, the current study measures predictive relevance by using Stone-Geisser's Q2 (Hair et al., 2017; Stone, 1974; Geisser, 1974). The finding indicates that the Q2 values for all of the constructs halal cosmetics supply chain agility practices, financial performance, and operational performance yielded Q² values of 0.331, 0.244, and 0.310, respectively. Table 6 shows the predictive relevance (Q²) Assessment.

Table 6: Predictive Relevance (Q²) Assessment

Construct	Predictive Relevance (Q ²)
Financial Performance	0.244
HCSCAP	0.331
Operational Performance	0.310

CONCLUSIONS AND FUTURE RESEARCH AGENDA

The empirical results reveal a significant relationship between management capabilities and HCSCAP. Consistent with the work of Razaghi and Shokouhyar (2021), these findings suggest that robust management competencies are critical drivers of firm performance and global sourcing efficacy. Furthermore, the positive correlation identified between HCSCAP and both operational and financial performance corroborates recent studies by Abdelilah et al. (2021) and Eslami et al. (2021). Consequently, this research provides dual-value implications for scholars and practitioners by highlighting how manufacturer feedback can catalyse industry-wide adoption of agile practices.

Nevertheless, several avenues for future research are recommended. Future studies may consider incorporating additional moderating or mediating variables, such as digitalisation capability, organisational readiness, or regulatory support, to further enrich the understanding of HCSCAP. Expanding the study to other sectors within the halal industry or different geographical contexts would enhance the generalisability of the findings. Furthermore, longitudinal studies are encouraged to capture the dynamic nature of supply chain agility over time. Qualitative approaches could also be employed to gain deeper insights into organisational practices and decision-making processes related to supply chain agility. Such efforts would contribute to a more comprehensive and nuanced understanding of agility-driven performance in the halal supply chain context. In spite of that, future studies may also using mixed-method approaches, including interviews or case studies, to provide deeper insights into the operational realities and strategic decisions of halal cosmetic manufacturers.

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