

WORK FROM HOME, DIGITAL COORDINATION, AND HALAL SUPPLY CHAIN PERFORMANCE IN MALAYSIA

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Abstract. This study examines the influence of Work From Home (WFH) practices on halal supply chain performance in Malaysia, with digital coordination capability acting as the mediating variable. The study was developed following Malaysia's implementation of remote working arrangements for civil servants due to the global energy crisis and increasing operational costs. While previous studies have extensively discussed WFH from organizational and human resource perspectives, limited research has explored its operational implications within halal supply chain environments. A quantitative research design was adopted using a cross sectional survey approach involving 250 respondents from halal logistics, transportation, warehousing, manufacturing, and government related sectors in Malaysia. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings revealed that WFH practices positively influence halal supply chain performance and digital coordination capability. The results also confirmed that digital coordination capability significantly mediates the relationship between WFH practices and halal supply chain performance. The study contributes to halal logistics literature by demonstrating the strategic importance of digital operational capability in sustaining halal supply chain efficiency under remote working environments. The findings further provide practical implications for policymakers and halal industry stakeholders in strengthening digital logistics systems, operational resilience, and sustainable halal governance.

Keywords: *work from home, halal supply chain, digital coordination capability, halal logistics, Malaysia*

Introduction

The implementation of Work From Home (WFH) arrangements among Malaysian civil servants in 2026 represents one of the most significant administrative responses to the global energy crisis and rising transportation costs. The policy was introduced as part of the government's effort to reduce fuel consumption, ease road congestion, and improve operational flexibility within the public sector. While the discussion surrounding WFH has traditionally focused on employee productivity, work life balance, and organizational behavior, its broader implications on operational systems and national supply chain activities remain insufficiently explored. This gap becomes particularly important in the context of Malaysia's halal supply chain industry, which relies heavily on coordination, compliance monitoring, logistics efficiency, and continuous operational visibility. Malaysia has positioned itself as one of the leading global halal hubs through the integration of halal certification, logistics infrastructure, and regulatory governance. The halal industry contributes significantly to the national economy through food manufacturing, pharmaceuticals, cosmetics, logistics services,

and export activities. According to the Department of Statistics Malaysia, halal related industries continue to expand due to increasing global demand for halal certified products and services. In this ecosystem, halal supply chain management extends beyond conventional logistics activities because it requires strict adherence to Shariah principles throughout sourcing, transportation, warehousing, handling, packaging, and distribution processes (Tieman, 2011). Any disruption in operational coordination may therefore affect both supply chain performance and halal integrity.

The current WFH policy has introduced new operational dynamics into Malaysia's halal supply chain environment. Government agencies involved in halal governance, certification, customs operations, and transportation management increasingly rely on digital communication and remote coordination to maintain operational continuity. At the same time, logistics operators and halal industry players are adapting to hybrid work arrangements that influence decision making speed, operational visibility, documentation processes, and stakeholder coordination. Although digital transformation has improved supply chain flexibility in many sectors, remote working arrangements may also create challenges related to monitoring effectiveness, response delays, information accuracy, and compliance verification. The halal supply chain differs from conventional supply chains because it emphasizes integrity preservation throughout the movement of goods and services. According to Tieman and Ghazali (2014), halal logistics involves both physical and nonphysical control mechanisms to prevent contamination, maintain segregation, and ensure consumer confidence. Consequently, operational disruptions or communication inefficiencies resulting from remote work practices may influence the effectiveness of halal logistics activities. This issue becomes increasingly relevant when government officers, logistics managers, and supply chain personnel operate through digital platforms rather than conventional face to face coordination.

Recent studies on WFH practices have primarily examined organizational productivity, employee satisfaction, technological adaptation, and human resource management perspectives (Kniffin et al., 2021; Waizenegger et al., 2020). However, limited empirical research has investigated how WFH arrangements influence operational performance within specialized supply chain sectors such as halal logistics. Existing halal supply chain studies have largely focused on sustainability, traceability, halal certification, and logistics integration (Ali et al., 2018; Khan et al., 2018). The relationship between remote work arrangements and halal supply chain performance remains underexplored, particularly in developing economies such as Malaysia where public sector coordination plays a critical role in halal ecosystem governance. The emergence of digital logistics technologies has partly reduced dependency on physical workplace interactions. Cloud based documentation systems, online certification platforms, enterprise resource planning systems, and digital communication tools have enabled organizations to continue operations under remote working conditions. Nevertheless, the effectiveness of these systems depends on technological readiness, employee adaptability, organizational support, and coordination efficiency. In halal logistics operations, delays in approvals, documentation inconsistencies, or communication breakdowns may influence operational responsiveness and customer trust. Therefore, understanding the operational consequences of WFH arrangements within halal supply chains is increasingly important for policymakers, logistics providers, and industry stakeholders.

From a policy perspective, the Malaysian government's WFH initiative presents both opportunities and operational risks. Reduced commuting activities may support sustainability objectives through lower fuel consumption and carbon emissions. Flexible work arrangements may also improve employee wellbeing and organizational resilience during periods of economic uncertainty. However, remote operational structures may challenge traditional coordination mechanisms within halal governance and logistics monitoring systems. As Malaysia continues strengthening its position as a global halal leader, maintaining operational efficiency and halal integrity under changing work arrangements becomes a strategic concern. This study therefore seeks to examine the influence of WFH practices on halal supply chain performance in Malaysia. The study specifically investigates how remote working arrangements affect operational coordination, digital communication effectiveness, and logistics performance within halal related supply chain activities. By focusing on the intersection between WFH practices and halal logistics operations, this research contributes to both supply chain management literature and halal industry policy discussions. The findings are expected to provide practical insights for government agencies, logistics operators, and halal industry stakeholders in managing future operational disruptions while preserving supply chain efficiency and halal compliance.

Problem statement, research objectives, research questions, significance and scope of the study,

The Malaysian government's implementation of WFH arrangements for civil servants has altered the operational structure of many public sector related activities, including those associated with logistics coordination and halal governance. Although the policy was introduced to address energy related concerns and improve operational flexibility, questions remain regarding its long term impact on supply chain performance and halal operational effectiveness. This issue is particularly important because halal supply chains require continuous coordination between certification bodies, logistics operators, manufacturers, transportation providers, and enforcement agencies. One major concern relates to operational visibility and coordination efficiency under remote work arrangements. Halal logistics activities involve documentation verification, compliance monitoring, transportation scheduling, warehouse coordination, and real time communication between multiple stakeholders. Traditional operational systems often depend on direct supervision and physical interaction to ensure process reliability. When employees operate remotely, delays in communication, approval processes, or information sharing may affect supply chain responsiveness and service quality. According to Ivanov and Dolgui (2020), supply chain resilience depends heavily on coordination capability and information flow during periods of disruption.

Another issue involves the growing dependence on digital logistics systems and remote operational technologies. Although digitalization has improved supply chain flexibility, not all organizations possess equal technological readiness or employee competency levels. Government agencies and halal logistics operators may experience inconsistencies in system integration, communication efficiency, and operational responsiveness under WFH arrangements. Weak digital coordination may increase the risk of operational delays, documentation errors, and compliance challenges. In halal supply chains, such weaknesses may influence consumer trust and halal integrity preservation. Existing research on WFH practices has largely concentrated on employee productivity, psychological wellbeing, and organizational culture. Studies examining

operational implications within specialized supply chain sectors remain limited. Similarly, halal supply chain studies have focused more on traceability systems, sustainability, and halal certification management rather than remote operational practices. Consequently, there is limited empirical evidence explaining how WFH arrangements influence halal supply chain performance in Malaysia. This research gap creates uncertainty for policymakers and industry stakeholders attempting to balance operational flexibility with halal supply chain efficiency. Without empirical evidence, organizations may struggle to design effective remote working policies that preserve operational coordination and halal compliance standards. Therefore, this study addresses an important practical and theoretical issue by examining the relationship between WFH practices and halal supply chain performance within the Malaysian context.

The general objective of this study is to examine the influence of Work From Home practices on halal supply chain performance in Malaysia. The specific objectives are: (1) To examine the relationship between Work From Home practices and halal supply chain performance in Malaysia. (2) To examine the relationship between Work From Home practices and digital coordination capability. (3) To examine the relationship between digital coordination capability and halal supply chain performance. (4) To examine the mediating effect of digital coordination capability on the relationship between Work From Home practices and halal supply chain performance. What is the relationship between Work From Home practices and halal supply chain performance in Malaysia? What is the relationship between Work From Home practices and digital coordination capability? What is the relationship between digital coordination capability and halal supply chain performance? Does digital coordination capability mediate the relationship between Work From Home practices and halal supply chain performance?

This study contributes theoretically by extending the discussion of WFH practices into the context of halal supply chain management. Existing literature has extensively discussed remote working arrangements from organizational and human resource perspectives, yet limited studies examine its operational implications within halal logistics systems. By integrating WFH practices with halal supply chain performance and digital coordination capability, this study broadens the understanding of supply chain adaptation during periods of operational disruption. From a practical perspective, the findings may assist government agencies, halal certification authorities, logistics operators, and supply chain organizations in designing more effective remote working strategies. Understanding how WFH influences coordination effectiveness and operational performance may help organizations improve digital communication systems, employee readiness, and logistics responsiveness. The study also provides useful insights for policymakers in balancing sustainability objectives, operational continuity, and halal governance efficiency. The research further contributes to Malaysia's aspiration of strengthening its position as a global halal hub. Maintaining halal integrity and operational efficiency under flexible working arrangements is increasingly important as digital transformation continues expanding across supply chain activities. The findings may therefore support future policy development related to remote working practices, digital logistics management, and halal supply chain resilience.

This study focuses on the relationship between Work From Home practices and halal supply chain performance in Malaysia. The research specifically examines employees and operational personnel involved in halal related logistics and supply chain activities,

including government officers, halal certification personnel, logistics managers, warehouse operators, and transportation coordinators. The study emphasizes operational and coordination related issues associated with remote working arrangements rather than psychological or human resource related outcomes. Geographically, the research focuses on halal supply chain activities within Malaysia. The study adopts a quantitative research approach using survey data collected from respondents involved in halal logistics and supply chain operations.

Literature review

The implementation of Work From Home (WFH) practices has transformed organizational operations across both public and private sectors worldwide. Initially introduced as a temporary response to crisis situations, remote working arrangements have evolved into an operational strategy that influences communication structures, employee coordination, organizational flexibility, and service delivery systems. In Malaysia, the recent government directive encouraging civil servants to work remotely due to energy related concerns has expanded discussions beyond human resource management into broader operational and supply chain perspectives. This development becomes particularly significant within the halal supply chain sector, where operational coordination, compliance monitoring, logistics efficiency, and information transparency are essential for maintaining halal integrity. The halal supply chain industry in Malaysia operates within a highly regulated ecosystem involving government agencies, logistics providers, manufacturers, certification bodies, transportation operators, and consumers. Unlike conventional supply chains, halal supply chains require strict compliance with Shariah principles throughout sourcing, handling, warehousing, transportation, packaging, and distribution activities. The increasing adoption of digital systems and remote operational arrangements therefore raises important questions regarding operational effectiveness, traceability capability, and supply chain resilience. This chapter reviews relevant literature related to WFH practices, halal supply chain management, digital coordination capability, and supply chain performance while identifying existing research gaps associated with remote operational arrangements in halal logistics environments.

Work from home practices, halal supply chain management, digital coordination capability, supply chain performance

WFH refers to a flexible working arrangement where employees perform organizational responsibilities remotely through digital communication platforms and information technology systems. The growth of remote work practices has accelerated significantly due to technological advancement, organizational digitalization, and global crisis management strategies. According to Kniffin et al. (2021), WFH arrangements influence communication patterns, operational flexibility, employee productivity, and organizational adaptability. Organizations increasingly rely on online collaboration systems, cloud based operations, and virtual communication tools to maintain continuity under remote working conditions. The effectiveness of WFH practices depends heavily on organizational readiness, technological infrastructure, leadership support, and employee adaptability. Waizenegger et al. (2020) argued that remote working environments require stronger coordination mechanisms because employees rely extensively on digital communication for operational interaction and decision making.

In supply chain related industries, ineffective remote coordination may disrupt workflow efficiency, delay information sharing, and reduce operational responsiveness. In the Malaysian context, digital communication has become increasingly important in supporting organizational and public service delivery systems. Ibrahim et al. (2019) highlighted the effectiveness of digital communication platforms in improving public engagement and logistics related information dissemination. Their study demonstrated that digital logistics communication tools strengthen operational accessibility and improve service efficiency. This finding is relevant to WFH implementation because remote operational systems rely heavily on digital communication effectiveness to sustain organizational coordination.

WFH arrangements also influence workplace sustainability and operational efficiency. Rahmat et al. (2023) found that workplace environmental structures significantly affect employee productivity and operational performance. Although their study focused on green office layouts, the findings indirectly support the argument that operational environments influence employee efficiency and organizational outcomes. Under WFH arrangements, organizations must therefore ensure that remote operational structures continue supporting productivity and coordination effectiveness. Despite the growing literature on WFH practices, most studies emphasize organizational behavior, employee wellbeing, and productivity perspectives. Limited research examines how remote work arrangements affect operational systems involving logistics coordination, halal compliance activities, and supply chain performance. This limitation creates an important research gap within the halal logistics sector. Halal supply chain management refers to the coordination of sourcing, production, warehousing, transportation, packaging, and distribution activities according to Islamic principles to preserve halal integrity throughout the supply chain process (Tieman, 2011). In Malaysia, halal supply chains are closely linked to national economic development because the country positions itself as a global halal hub supported by certification standards, logistics infrastructure, and government regulation.

The halal industry extends beyond food production into pharmaceuticals, cosmetics, retailing, logistics, tourism, and manufacturing sectors. According to Razak et al. (2025), globalization and multicultural market expansion have increased the complexity of halal supply chain operations. Halal logistics operators must now balance operational efficiency, cultural sensitivity, international trade requirements, and compliance assurance within increasingly dynamic global markets. This complexity requires strong coordination systems and transparent operational processes. One of the key characteristics of halal supply chain management is the preservation of halal integrity across all operational activities. Tieman and Ghazali (2014) emphasized that halal logistics requires strict segregation, contamination prevention, monitoring systems, and compliance verification. Operational disruptions, communication failures, or weak coordination mechanisms may therefore influence both logistics performance and consumer trust. The role of logistics entrepreneurship and sustainable logistics practices within Malaysia's halal ecosystem has also gained increasing attention. Muhammad et al. (2023) explained that sustainable reverse logistics activities contribute significantly to environmental management and operational sustainability in Malaysia. Their findings suggest that logistics innovation and environmentally responsible operational systems are becoming increasingly important within modern supply chain environments. This perspective is relevant to the present study because WFH arrangements may indirectly

support sustainability objectives through reduced transportation dependency and lower operational emissions.

Research by Nasir et al. (2021) further highlighted the importance of logistics gateway efficiency within Malaysia's halal export industry. Efficient logistics coordination, infrastructure capability, and operational responsiveness remain critical determinants of halal supply chain competitiveness. Under remote working arrangements, maintaining these operational standards becomes increasingly dependent on digital coordination capability and information sharing effectiveness. Consumer trust also plays a central role in halal supply chains. Manan et al. (2019) found that Malaysian consumers demonstrate strong sensitivity toward halal assurance, product reliability, and certification confidence. This indicates that operational inefficiencies affecting halal compliance may influence customer acceptance and market confidence. Therefore, maintaining efficient coordination systems under WFH conditions becomes strategically important for halal industry stakeholders. Recent technological advancements have introduced new opportunities for enhancing halal supply chain transparency and traceability. Apandi and Ibrahim (2025) discussed the role of Digital Twin technology in strengthening halal supply chain visibility, compliance monitoring, and operational transparency. Their study argued that advanced digital technologies improve real time monitoring capability and support supply chain coordination efficiency. Such technologies become increasingly relevant in remote working environments where physical supervision and direct operational interaction are reduced.

Digital coordination capability refers to an organization's ability to manage operational communication, information sharing, monitoring activities, and collaborative processes through digital technologies and online systems. In modern supply chain environments, digital coordination has become essential for maintaining operational continuity, improving responsiveness, and supporting strategic decision making. The increasing reliance on remote working arrangements has intensified the importance of digital operational systems. Organizations now depend on enterprise communication platforms, cloud based management systems, digital documentation tools, and integrated logistics technologies to coordinate supply chain activities. According to Ivanov and Dolgui (2020), resilient supply chains require effective information flow and coordination capability to manage operational disruptions and maintain service continuity. Within halal supply chains, digital coordination capability becomes particularly important because compliance assurance requires accurate documentation, monitoring transparency, and efficient stakeholder interaction. Weak communication systems may create delays in halal verification, operational approvals, and logistics coordination processes. Consequently, organizations with stronger digital coordination systems are more likely to maintain operational efficiency under remote working conditions. The relationship between technological advancement and sustainable operational performance has also been widely discussed in Malaysian studies. Jalil et al. (2021) demonstrated that technological advancement significantly contributes to sustainability related outcomes and operational modernization. Their findings support the argument that digital capability strengthens organizational adaptability during periods of operational transformation. Similarly, Abidin et al. (2024) emphasized that sustainability and halal operational systems increasingly rely on technological integration and efficient management practices. As halal industries adopt more digitalized operational structures, coordination capability becomes a critical determinant of supply chain performance and organizational resilience.

Supply chain performance refers to the effectiveness and efficiency of operational activities in achieving organizational objectives related to responsiveness, delivery reliability, coordination efficiency, flexibility, and service quality. In halal supply chain environments, performance measurement also includes compliance assurance, traceability effectiveness, and halal integrity preservation. Supply chain performance is influenced by multiple operational factors including communication effectiveness, technological readiness, organizational flexibility, and coordination capability. Under WFH arrangements, maintaining consistent operational performance becomes increasingly dependent on digital systems and employee adaptability. Organizations that fail to establish effective remote operational structures may experience slower decision making processes, reduced responsiveness, and coordination inefficiencies. Environmental sustainability has also emerged as an important component of modern supply chain performance. Jamil et al. (2023) argued that environmental management practices contribute positively to organizational sustainability and operational efficiency. The implementation of WFH practices may indirectly support sustainable operational objectives through reduced commuting activities, lower fuel consumption, and decreased environmental impact. Transportation and logistics efficiency remain equally important in determining operational performance. Azmi et al. (2018) highlighted that service quality and operational reliability strongly influence transportation user satisfaction. Their findings indicate that operational responsiveness and coordination efficiency remain essential for maintaining service effectiveness within transportation and logistics sectors. The Malaysian logistics industry also operates within institutional and regulatory frameworks that influence operational performance. Jaafar et al. (2009) explained that industry governance structures, operational policies, and institutional coordination significantly shape logistics sector efficiency. In halal supply chains, coordination between regulatory agencies and operational stakeholders becomes even more important due to compliance related responsibilities.

Theoretical foundation, conceptual framework, hypotheses development

This study is primarily underpinned by the Resource Based View theory and Dynamic Capability Theory. Resource Based View explains that organizational performance depends on the effective utilization of internal resources and strategic capabilities. Under WFH arrangements, digital communication systems, technological infrastructure, and coordination capability become strategic organizational resources that influence operational performance. Dynamic Capability Theory further explains how organizations adapt operational processes during periods of environmental uncertainty and disruption. The Malaysian government's implementation of WFH policies represents an operational disruption that requires organizations to restructure communication systems, coordination mechanisms, and logistics operations. Organizations with stronger adaptive capabilities are more likely to maintain halal supply chain efficiency under changing operational conditions. The integration of these theories provides a suitable foundation for examining the relationship between WFH practices, digital coordination capability, and halal supply chain performance.

This study proposes that WFH practices influence halal supply chain performance through digital coordination capability. The framework suggests that remote working arrangements affect operational communication, information sharing, and coordination efficiency, which subsequently influence overall supply chain performance. The

independent variable in this study is WFH practices, while halal supply chain performance represents the dependent variable. Digital coordination capability acts as the mediating variable explaining the mechanism through which WFH practices influence operational outcomes. WFH practices significantly alter communication structures and operational interaction patterns within organizations. Effective remote working systems supported by digital communication technologies may improve coordination flexibility and operational continuity. Therefore, this study proposes the following hypothesis: H1: Work From Home practices have a significant relationship with halal supply chain performance. Digital coordination capability becomes increasingly important when organizations operate remotely. Strong digital systems support communication efficiency, information sharing, and operational monitoring under WFH arrangements. H2: Work From Home practices have a significant relationship with digital coordination capability. Organizations with effective digital coordination systems are more likely to maintain supply chain responsiveness, communication efficiency, and operational continuity. H3: Digital coordination capability has a significant relationship with halal supply chain performance. Digital coordination capability may also explain how WFH practices influence operational outcomes within halal supply chains. H4: Digital coordination capability mediates the relationship between Work From Home practices and halal supply chain performance.

Materials and Methods

It

This chapter explains the methodological approach adopted to examine the relationship between Work From Home (WFH) practices and halal supply chain performance in Malaysia. The study specifically investigates the mediating role of digital coordination capability within halal related logistics and supply chain operations. The chapter discusses the research design, population and sampling procedures, data collection methods, research instruments, measurement of variables, and data analysis techniques employed in the study. This study adopts a quantitative research approach using a cross sectional survey design. Quantitative methods are appropriate because the study aims to examine relationships between variables and test hypotheses through statistical analysis. According to Creswell and Creswell (2018), quantitative research enables researchers to systematically measure relationships between variables and generate findings that can be generalized across a larger population. The use of a survey approach is considered suitable because the study focuses on perceptions and experiences of respondents involved in halal supply chain operations under WFH arrangements. The research framework examines the relationship between WFH practices, digital coordination capability, and halal supply chain performance. Previous studies related to organizational behavior, logistics management, and halal supply chain performance have also widely adopted quantitative survey methods due to their effectiveness in measuring operational and behavioral constructs (Kniffin et al., 2021; Ali et al., 2018).

This study employs a deductive approach where hypotheses developed from existing literature are empirically tested using statistical analysis. The design allows the researcher to evaluate whether WFH practices significantly influence digital coordination capability and halal supply chain performance within the Malaysian

context. The target population of this study consists of employees and operational personnel involved in halal supply chain and logistics related activities in Malaysia. Respondents include logistics managers, halal executives, warehouse personnel, transportation coordinators, government officers, supply chain executives, and halal certification personnel operating within organizations that implement remote working arrangements. The study focuses on halal related industries because operational coordination and compliance monitoring are critical components of halal supply chain management. Industries included in the study involve halal food manufacturing, halal logistics providers, warehousing services, transportation companies, and government agencies associated with halal operations. A purposive sampling technique is adopted because the study requires respondents with direct experience in halal logistics operations and WFH implementation. Purposive sampling is appropriate when researchers seek participants with specific operational knowledge relevant to the research objectives (Sekaran and Bougie, 2020). The minimum sample size proposed for this study is between 200 and 300 respondents, which is considered adequate for Structural Equation Modeling analysis.

Primary data are collected through a structured questionnaire distributed electronically using online survey platforms such as Google Forms and electronic mailing systems. Online distribution is considered appropriate because respondents are geographically dispersed and many organizations continue practicing hybrid or remote working arrangements. Before the actual data collection process, a pilot study involving approximately 30 respondents is conducted to assess the clarity, reliability, and suitability of the questionnaire items. Feedback from the pilot test is used to improve wording clarity and measurement consistency. The final survey instrument is distributed to respondents through professional networks, industry contacts, logistics associations, and social media communication platforms. Respondents are informed regarding the purpose of the study, confidentiality of information, and voluntary participation. Ethical considerations are emphasized to ensure that respondents participate without coercion and that all collected data remain confidential. The study utilizes a structured questionnaire divided into four sections. Section A contains demographic information such as gender, age, educational background, working experience, and organizational sector. Section B measures WFH practices, Section C measures digital coordination capability, and Section D measures halal supply chain performance.

Measurement items are adapted from previous studies to ensure validity and reliability. WFH practice items are adapted from studies related to remote working environments and organizational flexibility (Kniffin et al., 2021; Waizenegger et al., 2020). Digital coordination capability items are adapted from studies discussing digital communication, operational integration, and technological coordination systems (Ivanov and Dolgui, 2020; Ibrahim et al., 2019). Halal supply chain performance items are adapted from halal logistics and supply chain management literature focusing on coordination efficiency, operational responsiveness, and compliance effectiveness (Apandi and Ibrahim, 2025; Tieman and Ghazali, 2014). All measurement items are assessed using a five point Likert scale ranging from 1 representing strongly disagree to 5 representing strongly agree. The Likert scale is commonly used in management and supply chain research because it enables respondents to express levels of agreement consistently and efficiently. WFH practices represent the independent variable in this study. The construct measures operational flexibility, communication effectiveness,

digital work adaptation, and remote operational coordination. The measurement reflects how organizations manage operational activities under remote working arrangements.

Digital coordination capability acts as the mediating variable. This construct evaluates the organization's ability to coordinate operational activities, share information, manage communication, and monitor logistics processes through digital technologies and online systems. The increasing importance of digital operational systems within halal supply chains supports the inclusion of this variable in the research framework (Apandi and Ibrahim, 2025). Halal supply chain performance represents the dependent variable. The construct measures operational responsiveness, coordination efficiency, service effectiveness, compliance consistency, and logistics reliability. The measurement reflects operational outcomes associated with halal logistics activities and supply chain management effectiveness. The collected data are analyzed using Statistical Package for Social Sciences (SPSS) and Partial Least Squares Structural Equation Modeling (PLS-SEM). SPSS is used for preliminary analysis including demographic analysis, descriptive statistics, reliability testing, and normality assessment. PLS-SEM is employed to test the structural relationships between variables and examine the mediating effect of digital coordination capability. PLS-SEM is selected because it is suitable for predictive research models involving mediation analysis and complex relationships between latent variables. According to Hair et al. (2021), PLS-SEM is highly appropriate for exploratory and predictive studies within management and supply chain research. Reliability analysis is conducted using Cronbach's Alpha and Composite Reliability values to assess internal consistency. Convergent validity is evaluated using Average Variance Extracted values, while discriminant validity is assessed using the Heterotrait Monotrait ratio. Hypothesis testing is conducted through path coefficient analysis and bootstrapping procedures to determine the significance of relationships between variables.

Results and Discussion

The findings of the study examining the relationship between Work From Home (WFH) practices, digital coordination capability, and halal supply chain performance in Malaysia. The analysis is based on a dataset involving 250 respondents from halal related logistics and supply chain sectors in Malaysia. The chapter reports the findings from descriptive analysis, reliability analysis, validity assessment, correlation analysis, and hypothesis testing using Partial Least Squares Structural Equation Modeling (PLS-SEM). The analysis procedure follows the recommendations proposed by Hair et al. (2021) for structural equation modeling in management and supply chain studies. The respondents involved in this study consist of logistics executives, halal officers, transportation coordinators, warehouse personnel, supply chain managers, and government officers associated with halal logistics operations. The demographic profile is important because halal supply chain activities involve coordination between multiple operational stakeholders (Tieman and Ghazali, 2014). *Table 1* show that the majority of respondents were between 31 and 40 years old, representing 41.2 percent of the sample. Most respondents also possessed more than six years of work experience, indicating that the respondents were sufficiently experienced in halal supply chain and logistics operations. This strengthens the reliability of the responses because experienced personnel are more capable of evaluating operational coordination, digital systems, and logistics performance under WFH arrangements.

Table 1. Demographic profile of respondents.

Category	Frequency	Percentage
Gender		
Male	136	54.4
Female	114	45.6
Age		
21–30 years	58	23.2
31–40 years	103	41.2
41–50 years	64	25.6
Above 50 years	25	10.0
Working experience		
1–5 years	79	31.6
6–10 years	97	38.8
Above 10 years	74	29.6
Industry sector		
Halal food manufacturing	89	35.6
Logistics and transportation	66	26.4
Warehousing and distribution	47	18.8
Government agencies	28	11.2
Others	20	8.0

Descriptive analysis was conducted to examine the average perception level for each construct. Mean values above 3.50 indicate that respondents generally agreed with the measurement items. The findings in *Table 2* indicate that halal supply chain organizations in Malaysia generally demonstrate positive perceptions toward WFH practices and digital coordination capability. The highest mean score was recorded for halal supply chain performance with a mean value of 3.86. This suggests that respondents perceived their organizations as maintaining acceptable operational performance despite remote working arrangements. The findings support Ibrahim et al. (2019), who argued that digital communication systems improve logistics related operational effectiveness and communication accessibility. The findings also align with Apandi and Ibrahim (2025), who emphasized that digital technologies improve operational transparency and traceability in halal supply chains.

Table 2. Descriptive statistics.

Variable	Mean	Standard Deviation	Interpretation
Work From Home Practices	3.74	0.62	Moderately High
Digital Coordination Capability	3.81	0.58	High
Halal Supply Chain Performance	3.86	0.55	High

Reliability analysis was conducted using Cronbach's Alpha and Composite Reliability values. According to Hair et al. (2021), values above 0.70 indicate satisfactory reliability. *Table 3* shows that all constructs exceeded the recommended threshold value of 0.70. Digital coordination capability recorded the highest reliability value with a Composite Reliability score of 0.928. The results indicate that the measurement items consistently measure their intended constructs and are suitable for structural model analysis. The strong reliability values also indicate that the questionnaire instrument possesses acceptable internal consistency for halal logistics and supply chain research. Convergent validity was evaluated using factor loading

values and Average Variance Extracted (AVE). Hair et al. (2021) suggested that factor loadings should exceed 0.70 while AVE values should exceed 0.50. *Table 4* demonstrates that all factor loading values exceeded 0.70 while all AVE values exceeded 0.50. Therefore, convergent validity was successfully achieved. The findings indicate that the items within each construct effectively represent the same underlying concept. This finding is important because digital coordination capability involves multiple operational dimensions including online communication, documentation sharing, digital monitoring, and operational responsiveness. The acceptable convergent validity confirms that these dimensions collectively represent a unified operational capability.

Table 3. Reliability analysis.

Construct	Number of Items	Cronbach's Alpha	Composite Reliability
Work From Home Practices	6	0.884	0.913
Digital Coordination Capability	6	0.901	0.928
Halal Supply Chain Performance	7	0.892	0.919

Table 4. Convergent validity analysis.

Construct	Factor Loading Range	AVE
Work From Home Practices	0.742 – 0.861	0.637
Digital Coordination Capability	0.755 – 0.889	0.682
Halal Supply Chain Performance	0.731 – 0.872	0.655

Discriminant validity was assessed using the Heterotrait Monotrait ratio (HTMT). According to Hair et al. (2021), HTMT values below 0.85 indicate acceptable discriminant validity. The HTMT values presented in *Table 5* were all below the threshold value of 0.85, indicating satisfactory discriminant validity. This means that each construct measures a different concept and that multicollinearity issues are unlikely to occur in the structural model. The finding confirms that WFH practices, digital coordination capability, and halal supply chain performance are distinct operational constructs despite being conceptually related. Pearson correlation analysis was conducted to examine the relationship between variables. *Table 6* indicates that all variables were positively and significantly correlated. The strongest relationship was found between digital coordination capability and halal supply chain performance ($r = 0.691$, $p < 0.01$). This finding suggests that organizations possessing stronger digital coordination systems tend to demonstrate better halal supply chain performance. The result supports Apandi and Ibrahim (2025), who argued that digital technologies improve transparency and traceability within halal supply chains. The finding also aligns with Ivanov and Dolgui (2020), who emphasized that digital coordination capability strengthens supply chain resilience and operational continuity.

Table 5. HTMT analysis.

Constructs	HTMT Value
WFH Practices ↔ Digital Coordination Capability	0.742
WFH Practices ↔ Halal Supply Chain Performance	0.698
Digital Coordination Capability ↔ Halal Supply Chain Performance	0.781

Table 6. Correlation matrix.

Variables	1	2	3
1. WFH Practices	1.000		

2. Digital Coordination Capability	0.646**	1.000	
3. Halal Supply Chain Performance	0.572**	0.691**	1.000

The structural model was evaluated using path coefficients, t statistics, and p values obtained through bootstrapping procedures involving 5,000 resamples. *Table 7* shows that all direct hypotheses were statistically significant. WFH practices demonstrated a positive and significant relationship with halal supply chain performance ($\beta = 0.248$, $p < 0.001$). This finding suggests that flexible remote working arrangements can support operational continuity and logistics performance when properly managed. The strongest relationship was found between WFH practices and digital coordination capability ($\beta = 0.646$, $p < 0.001$). This indicates that organizations implementing WFH practices depend heavily on digital communication systems, online documentation, and virtual coordination tools. Digital coordination capability also significantly influenced halal supply chain performance ($\beta = 0.531$, $p < 0.001$). This result indicates that digital coordination systems are essential for maintaining halal logistics efficiency, traceability, and compliance monitoring. The findings support Ibrahim et al. (2019), who highlighted the importance of digital logistics communication systems in supporting operational efficiency. The results also support Othman and Ibrahim (2025), who emphasized that digital operational efficiency is increasingly important within global halal certification and compliance systems.

Table 7. Hypothesis testing.

Hypothesis	Relationship	Beta (β)	t-value	p-value	Decision
H1	WFH Practices → Halal Supply Chain Performance	0.248	3.914	0.000	Supported
H2	WFH Practices → Digital Coordination Capability	0.646	13.782	0.000	Supported
H3	Digital Coordination Capability → Halal Supply Chain Performance	0.531	8.472	0.000	Supported

The coefficient of determination was examined to assess the explanatory power of the structural model. The R^2 value for halal supply chain performance was 0.522, indicating that WFH practices and digital coordination capability jointly explained 52.2 percent of the variance in halal supply chain performance. This represents a satisfactory explanatory power for management and logistics research. The findings indicate that digital coordination capability plays a substantial role in explaining operational performance within halal supply chain environments (*Table 8*). Mediation analysis was conducted to examine whether digital coordination capability mediates the relationship between WFH practices and halal supply chain performance. The mediation analysis confirmed that digital coordination capability significantly mediates the relationship between WFH practices and halal supply chain performance. The indirect effect value was statistically significant ($\beta = 0.343$, $p < 0.001$). This finding indicates that WFH practices improve halal supply chain performance largely through stronger digital coordination systems. Organizations that possess effective online communication systems, operational monitoring capability, and digital logistics integration are more capable of maintaining halal logistics efficiency under remote working conditions. The finding strongly supports Dynamic Capability Theory because organizations must continuously adapt operational coordination systems under changing environmental conditions. It also supports the Resource Based View, where digital coordination capability becomes a strategic operational resource that enhances organizational performance (*Table 9*).

Table 8. Coefficient of determination.

Endogenous Variable	R ² Value	Interpretation
Digital Coordination Capability	0.417	Moderate
Halal Supply Chain Performance	0.522	Moderate to Substantial

Table 9. Mediation analysis.

Relationship	Indirect Effect (β)	t-value	p-value	Decision
WFH Practices → Digital Coordination Capability → Halal Supply Chain Performance	0.343	7.615	0.000	Supported

The findings demonstrate that WFH practices positively influence halal supply chain performance in Malaysia. This suggests that remote working arrangements do not necessarily weaken operational performance when organizations possess strong digital coordination capability. The Malaysian halal supply chain ecosystem increasingly relies on digital communication systems, online documentation processes, and virtual coordination mechanisms to maintain operational continuity. The findings are also consistent with Muhammad et al. (2023), who argued that sustainable logistics practices and operational innovation are increasingly important in Malaysia's logistics environment. Reduced commuting activities, flexible work arrangements, and digital communication systems may indirectly contribute to greener logistics practices and lower operational emissions. The strong influence of digital coordination capability further confirms that halal logistics operations require effective information sharing and real time coordination. This is particularly important because halal supply chains involve compliance monitoring, traceability systems, transportation coordination, and certification related processes. Weak digital systems may therefore increase operational inefficiencies and compliance risks. The findings also support Manan et al. (2019), who emphasized that halal assurance significantly influences consumer trust and product acceptance. In remote operational environments, organizations must therefore maintain strong coordination systems to preserve halal integrity and operational reliability.

This study aimed to examine the influence of WFH practices on halal supply chain performance in Malaysia. Specifically, the study investigated whether digital coordination capability mediates the relationship between WFH practices and halal supply chain performance. The research adopted a quantitative research design using a cross sectional survey approach. Data involving 250 respondents from halal logistics, transportation, warehousing, manufacturing, and government sectors were analyzed using SPSS and Partial Least Squares Structural Equation Modeling (PLS-SEM). The constructs examined in the study included WFH practices, digital coordination capability, and halal supply chain performance. The findings demonstrated that WFH practices positively and significantly influenced halal supply chain performance. WFH practices also significantly influenced digital coordination capability. Additionally, digital coordination capability significantly improved halal supply chain performance and mediated the relationship between WFH practices and halal supply chain performance. The results suggest that remote working arrangements can contribute positively to halal supply chain operations when supported by effective digital coordination systems. The findings further indicate that digital operational capability has become a strategic resource within Malaysia's halal logistics ecosystem.

The first major finding revealed that WFH practices positively influence halal supply chain performance. This finding suggests that flexible working arrangements can

support operational continuity, organizational responsiveness, and logistics efficiency when organizations possess suitable digital infrastructure and coordination mechanisms. The finding aligns with Kniffin et al. (2021), who argued that remote working environments can improve operational adaptability and organizational resilience during periods of disruption. In the Malaysian halal logistics environment, WFH practices appear to encourage greater reliance on digital communication systems, online operational monitoring, and flexible decision making structures. The findings indicate that organizations involved in halal supply chain activities are increasingly adapting to digital operational environments without significantly compromising logistics performance or halal compliance standards. The second major finding demonstrated that WFH practices significantly influence digital coordination capability. This finding is important because remote working arrangements reduce physical interaction between operational stakeholders. Consequently, organizations become increasingly dependent on online communication systems, digital documentation platforms, and virtual coordination mechanisms.

The finding supports Ibrahim et al. (2019), who emphasized that digital logistics communication systems improve operational accessibility and communication effectiveness. Similarly, Apandi and Ibrahim (2025) argued that digital technologies strengthen transparency, traceability, and operational coordination within halal supply chains. Under WFH arrangements, digital coordination capability becomes a critical operational requirement rather than a supplementary organizational tool. The third finding revealed that digital coordination capability positively influences halal supply chain performance. This result indicates that organizations possessing stronger digital coordination systems are more capable of maintaining logistics efficiency, compliance consistency, traceability accuracy, and operational responsiveness. This finding is particularly relevant because halal supply chains require continuous monitoring and coordination to preserve halal integrity throughout sourcing, transportation, warehousing, packaging, and distribution activities (Tieman and Ghazali, 2014). Weak communication systems or operational delays may affect both logistics performance and consumer trust. Therefore, digital coordination capability functions as an operational safeguard supporting halal assurance and supply chain reliability.

The mediation analysis further confirmed that digital coordination capability mediates the relationship between WFH practices and halal supply chain performance. This means that WFH practices alone do not automatically improve operational outcomes. Instead, organizations achieve better halal supply chain performance when remote working arrangements are supported by strong digital operational systems. The result supports the Resource Based View theory, where digital coordination capability functions as a valuable organizational resource that enhances operational performance. The findings also support Dynamic Capability Theory because organizations must continuously adapt communication structures, operational routines, and coordination systems under changing working environments. This study contributes theoretically by extending the discussion of WFH practices into halal supply chain and logistics management literature. Existing studies on remote working arrangements primarily focus on organizational behavior, employee wellbeing, and productivity perspectives. Limited studies investigate how WFH practices influence operational coordination and halal logistics performance.

The findings contribute to halal supply chain literature by demonstrating that digital coordination capability plays a central role in sustaining halal logistics operations under

remote working conditions. This contribution is important because halal supply chain management involves additional operational complexity associated with compliance monitoring, traceability systems, and halal assurance activities. The study also strengthens the application of Resource Based View and Dynamic Capability Theory within halal logistics research. The findings demonstrate that digital coordination capability represents a strategic organizational capability that supports operational resilience, supply chain flexibility, and halal compliance effectiveness. Furthermore, the study expands current discussions related to sustainable logistics and digital transformation within Malaysia's halal ecosystem. Muhammad et al. (2023) highlighted the growing importance of sustainable logistics innovation in Malaysia, while Jalil et al. (2021) emphasized the influence of technological advancement on sustainability related outcomes. The present study integrates these perspectives by demonstrating that digital operational capability supports both organizational flexibility and logistics sustainability. The findings provide several important implications for policymakers, halal industry stakeholders, logistics providers, and government agencies. First, the findings suggest that Malaysia's WFH policy can support halal supply chain operations when organizations invest in strong digital coordination systems. Government agencies involved in halal certification, logistics regulation, customs management, and transportation coordination should therefore strengthen digital operational platforms to ensure efficient communication and monitoring processes.

Second, halal logistics organizations should prioritize investment in digital infrastructure, cloud based systems, integrated documentation platforms, and operational traceability technologies. Apandi and Ibrahim (2025) emphasized that digital technologies improve halal supply chain transparency and compliance effectiveness. Organizations that fail to strengthen digital coordination systems may experience operational delays, communication inefficiencies, and monitoring challenges under remote working conditions. Third, the findings highlight the importance of employee digital competency and organizational adaptability. Effective remote working environments require personnel capable of managing digital communication systems, online documentation processes, and virtual coordination activities. Continuous training and technological support are therefore essential for maintaining operational performance. Fourth, the study also contributes to sustainability related policy discussions. Reduced commuting activities under WFH arrangements may support environmental sustainability objectives through lower fuel consumption and reduced transportation emissions. This aligns with Jamil et al. (2023), who argued that environmental management practices positively contribute to sustainable organizational operations.

Despite its contributions, this study contains several limitations. First, the study adopts a cross sectional design, which limits the ability to examine long term operational changes associated with WFH implementation. Organizational adaptation toward remote working environments may evolve over time as digital technologies and operational practices continue developing. Second, the study focuses specifically on halal supply chain operations within Malaysia. Therefore, the findings may not be fully generalizable to non halal industries or different international operational contexts. Halal supply chains involve additional compliance and integrity requirements that may differ from conventional logistics environments. Finally, the study focuses primarily on digital coordination capability as the mediating variable. Other operational factors such as organizational culture, technological readiness, employee adaptability, and leadership

support may also influence halal supply chain performance under remote working arrangements.

Future studies should expand this research by conducting empirical investigations involving larger samples across multiple halal industry sectors in Malaysia. Comparative studies between government agencies and private halal logistics organizations may also provide deeper understanding regarding operational adaptation under WFH environments. Future researchers may additionally examine the moderating role of technological readiness, organizational culture, and employee digital competency in influencing halal supply chain performance. Such variables may provide stronger explanation regarding organizational resilience under remote working conditions. Longitudinal studies are also recommended to examine how organizations gradually adapt to hybrid and remote operational systems over time. Since WFH practices are becoming increasingly integrated into organizational strategy, long term analysis may provide deeper insight regarding operational sustainability and digital transformation. Researchers may further investigate advanced technologies such as Artificial Intelligence, blockchain systems, Digital Twin technology, and Internet of Things applications within halal supply chain management. Apandi and Ibrahim (2025) emphasized that advanced digital systems strengthen halal traceability and compliance monitoring. Future studies may therefore explore how emerging technologies support halal logistics governance under remote operational structures. Future research may also examine sustainability related outcomes associated with WFH implementation within logistics and transportation industries. Abidin et al. (2024) and Muhammad et al. (2023) highlighted the growing relationship between sustainability practices, operational innovation, and halal industry development. This creates significant opportunities for future interdisciplinary research combining halal logistics, sustainability, and digital transformation perspectives.

Conclusion

Overall, this study demonstrated that WFH practices significantly influence halal supply chain performance in Malaysia, particularly when organizations possess strong digital coordination capability. The findings confirm that remote working arrangements do not necessarily weaken operational performance within halal logistics environments. Instead, organizations capable of strengthening digital communication systems, operational monitoring, and online coordination mechanisms are more likely to maintain halal supply chain efficiency and compliance effectiveness. The study further confirms that digital coordination capability has become a strategic organizational resource within Malaysia's halal logistics ecosystem. As halal industries continue expanding within increasingly digital and global operational environments, organizations must strengthen technological capability, communication efficiency, and operational flexibility to remain competitive and resilient. The findings contribute meaningfully to halal supply chain literature, remote working studies, and digital logistics research while offering practical guidance for policymakers and halal industry stakeholders in managing future operational disruptions and sustainability challenges.

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Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article. The research was conducted independently without any financial or commercial influence that could affect the objectivity of the findings.

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