

# Risk Analysis and Management and Significance of *Halalan Tayyiban* Sustainability in Halal Warehousing Operations

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## ABSTRACT

The global warehousing and storage market was valued at 451.9 billion in 2021 and is predicted to be approximately USD 605.6 billion by 2026. The current existing landscape of the global warehousing and storage market is skyrocketing dramatically, owing to the rapid enhancement of digitalization, globalization, and technological development. This situation can create both potential and obstacles which directly shows an alarming need for comprehensive risk analysis and management in the industry. In Halal warehousing operation, the Halal product is potentially exposed to a variety of cross-contamination risks that would affect the *Halalan Tayyiban* integrity, which embraces both the safety risks as well as Halal risks. This study critically focuses on the integration of comprehensive risk analysis and management processes in Halal warehouses by examining any potential risk in depth, ranging from contamination and productivity issues to misconduct. It also explains how the implementation of risk analysis and management could assist in the long-term sustainability of the Halal warehousing industry by ensuring that operations completely adhere to the principle of *Halalan Tayyiban* while fulfilling the growing market for Halal products. In doing so, the relevant literature was reviewed and analyzed qualitatively using content analysis. Applicable secondary sources, including previous studies, operating handbooks, certification guidelines, and legislation will be reviewed. Therefore, through the implementation of a content analysis approach, the study's findings demonstrate that Halal products are exposed to various risks and contaminants, during various activities in Halal warehouse business operations. Because risk can result in a significant loss, a critical part of the Halal warehouse business operation is the identification, assessment, elimination, and/or control of hazards. These could be done by conducting a risk analysis and developing a risk management plan with the integration of the *Halalan Tayyiban* concept.

**Keywords:** Halal, *Tayyiban*, Warehouse, Operation, Risk

## INTRODUCTION

According to one of the most recent International Market Analysis Research and Consulting Group (IMARC Group) analysis report, "Warehousing and Storage Market: Worldwide Industry Trends, Share, Size, Growth, Opportunity, and Forecast 2022-2027", the global warehousing and storage market was valued at 451.9 billion in 2021 and is predicted to be approximately US\$ 605.6 billion by 2026. (IMARC Services Private Limited, 2022). The warehousing industry is a rapidly evolving sphere of economic activity and landscape as it engages with a wide range of businesses, operations, commodities, nations and regions, cultures, and organizational structures. It is realistic to believe that continuing success and sustainability of the existing warehousing industry is unattainable without keeping up with the latest trends, innovation, and creative approaches that provide more opportunities to grow, expand, and remain lucrative in the market. Thus, warehousing operations are considered one of the critical features in a company's strategic business plan and play a crucial role in an organization's logistics network (Indian Institute of Materials Management, 2020). The current warehousing business landscape is trying persistently to fulfill all the requirements of the twenty-first-century economy. The company might be able to receive and deliver all the designated inventories without any delays to the manufacturing or resupply on store shelves if the whole warehouse business operations are cost-effective (Indian Institute of Materials

Management, 2020).

Undeniably, Halal Warehouse management is considered an essential component of the logistics in the Halal supply chain. In the framework of the Halal warehousing business, embracing the concept of "*Halalan Tayyiban*" entails comprehensive risk management to guarantee that each of the items in storage fits all the related standards and requirements. At the point where Halal supply chain operations include the utilization of Halal warehouses operation, it is critical justification to consider the existing potential of *Halalan Tayyiban*-related risks and the significance of risk analysis, and risk management approaches concerning the *Halalan Tayyiban* in Halal warehousing operation as it offers more sustainability and resilience for the future of the Halal warehousing industry.

Risk is an unavoidable element of business operations, and in an era where massive volumes of information are being handled at ever-increasingly extremely high speeds, understanding, and managing risk is a challenge for every company. In fact, according to prior research, 8 of the top 10 business risks are directly associated with social or environmental concerns (Schulte & Hallstedt, 2017). Most crucially, it is about the risk to the company's competitiveness and efficiency, i.e., the capacity to match consumer demands in increasingly sustainable marketplaces. Thus, to boost the business competitive advantage, preserve business market dominance, and produce greater revenues, the industry players around the world should consider how they can implement innovative approaches and solutions not only involving the specific business nature but also the essential nature of the commodities offered to the final user in the market. Regardless of whether the origin of the risks is under the organization's direct control or not, the risk should be carefully identified and analyzed because even seemingly minor risks can cause severe damage or provide a golden opportunity when integrated with other occurrences. Therefore, one of the primary topics of interest is to conduct risk analysis in the existing Halal warehousing business operations. This article reviews the intersection of risk analysis and management with *Halalan Tayyiban* sustainability in Halal warehousing business operations. This study offers to the continuing discussion about comprehensive Halal warehousing management by underlying the groundwork for a more sustainable and resilient risk analysis and management approach that not only satisfies religious commitments (Halal) but also fulfills quality and security (*Tayyiban*) benchmarks.

## LITERATURE REVIEW

### A. Definition of Halal and Halal Warehousing

Fundamentally, the idea of *Halalan Tayyiban* incorporates the Halal and *Tayyib* aspects where both elements of Halal and Haram are the two primary terms that commonly underpin the notion of *Halalan tayyibban*. Besides, both words Halal and *Tayyib* are Arabic terms which commonly stated alongside various Quranic verses. The Almighty Allah says in Surah al-Baqarah, Surah al-Nahl, and Surah al-Mu'minun and other Quranic verses stated earlier the command upon Muslims to eat only Halal and *Tayyib* (good) food (Quran, 2:168, 16:114, 23:51). According to the MS2400:2019 Part 2 (Department of Standard, 2019), Halal is defined as "Matters that are lawful and permitted in Islam based on the Shariah law and fatwa" whereas non-Halal (Haram) are matters that are unlawful and prohibited in Islam based on Shariah law and fatwa. Since the Quran and Hadith have been the primary sources for Muslims, what is lawful (Halal) and unlawful (Haram) are mentioned several times in both references. Almighty Allah clearly states in the Quran regarding the issues of Halal and Haram (Quran, 2:173, 2:57, 2:172, 6:145). Likewise, the issues of Halal and haram are mentioned in the Hadith narrated by Al-Bukhari and Muslims: "Verily Allah and His Messenger (PBUH) have prohibited selling alcohol, dead meat, swine, and idols." (Al-Bukhari Hadith no. 2236 and Muslim Hadith no. 1581). In the meantime, *Tayyib* can be indicated as good, pure, or wholesome (Zaharudin *et al.*, 2022). Additionally, according to Mustaffa (2019), some academicians argue that the term '*Tayyib*' carries out Halal meanings. The word can be described as the nutrient-dense and assured food safety features of high-quality food, which goes against the negative traits, such as being unclean, of poor quality, and causing damage to human beings both temporarily and chronically. *Tayyib* food must be something safe for human consumption and should be free from any hazardous chemicals, pesticides, and/or other harmful ingredients. It must also include all clean and healthy food that has been authorized, to protect against foodborne disease or adulteration as well as contamination either through biological, chemical, or physical hazards. Therefore, the philosophy of *Halalan tayyiban* encourages Muslims to seek nourishment which not only emphasises the necessity of consuming what is allowable (Halal) according to

Islamic law but also of being of superior quality and beneficial (*Tayyiban*).

In the context of Malaysian legislation, the Trade Descriptions Act 2011 (TDA 2011) and the Malaysian Standard are two important references for defining the regulatory and judicial structures that govern Halal activities in Malaysia. Article 3 of the Trade Descriptions (Definition of Halal) Order 2011 stipulates “Halal” as food or items that have been designated as Halal or with any other term that indicates that they are permitted to be eaten or utilized by Muslims. This also applies to services about food or products labeled as Halal or denoted by any other term suggesting that Muslims may utilize the provided services. Such assertions imply that all operations relating to Halal food or products are carried out in line with Islamic law and requirements. All the recognized Halal foods and goods and related services must fulfill all the stringent requirements. They must not contain any forbidden animal parts or substances or those which have not been killed following *Shariah* law, nor should they contain any unhygienic, intoxicating, or hazardous to human well-being and does not contain any human parts or its yield that are prohibited by *Shariah* law. During the process of preparation, manufacturing, or storage, they need to keep away from any contaminated equipment and non-Halal materials or resources. This rigorous control guarantees that Halal goods satisfy all Islamic legal criteria while maintaining their purity and safety. On this note, the Malaysian Trade Descriptions Act 2011, which oversees trade descriptions and associated things, has important ramifications for businesses including Halal warehousing. Article 4 of the said Order further indicates that “service concerning the food and goods” includes the storage, transportation, and retail of such food and goods, and these also include the warehousing process. Therefore, the act assures that all business representations, such as manufacturing, labeling, packaging, storing, and commercials, are truthful or transparent without any misleading incidents.

On the other hand, Halal as stipulated in MS1500:2019- Halal Food - General Requirements (Third Revision) can be defined as matters that are permissible and authorized in Islam according to the provisions of Shariah and Fatwa. Like the TDA 2011, the MS1500:2019 definition of Halal also indicates that the processing, preparation, and storage of both consumable and non-consumable materials must adhere to the laws and regulations set out by Shariah and Fatwas.

In summary, both MS1500:2019 and the TDA 2011 underscore the significance of adhering to Shariah law, making sure any goods and services that are recognized as Halal must comply with specifically legitimate, religious, and operational requirements of Shariah law throughout every stage of the supply chain. Additionally, Halal food and goods and services concerning food and goods to be considered as Halal does not only on the raw materials and ingredients used in their making, and their effects on human health, but also on the ways how food and goods are handled, processed, and stored.

## B. Definition of Risk

Alexandru (2019) stated that Frank Knight presented the most popular idea of risk in 1921, as the central theme of his outstanding contribution titled “Risk, Uncertainty, and Profit”. Knight (1921) distinguished between risk and uncertainty, suggesting that risk can be measured while uncertainty cannot and stating that possibilities of potential events are unpredictable. Risks are also frequently mentioned in a negative context, and the term risk is frequently used to define an unpleasant condition. Gratt (1989) also proposed risk as the possibility for the realization of unintended, damaging consequences to humankind, wellbeing, property, or the surroundings, and the risk evaluation is commonly derived from the anticipated magnitude of the conditional likelihood of the event occurring times the predicted outcome (consequences) of the event given that has happened. On the other hand, Stanley and Garrick (1981) believed that the idea of risk encompasses both uncertainty and a potential for damage or loss where in a symbolic sense it might be represented.

Risk = Uncertainty + Damage.

Risk, on the other hand, does not necessarily lead to a negative consequence since some of the risks are taken solely with the expectation of a beneficial outcome. For example, from the perspective of the International Organization for Standardization (2018), risk is one of the consequences of uncertainty on objectives, and it may either be advantageous or detrimental, presenting barriers or opening opportunities. From the perspective of the International Organization for Standardization, the definition of risk emphasizes more on the consequences of

incomplete knowledge concerning the occurrences or circumstances of an event that can affect the process of decision-making in an organization.

### C. The Concept of Risk Analysis and Risk Management

ISO 31000:2018 is an internationally reputable and recognized standard that outlines comprehensive risk management techniques including the process of risk analysis. The recommended framework provides a structure and procedure for risk management that can potentially be implemented into an organization's management and decision-making processes around the globe. In ISO 31000: 2018 (Second Edition), the International Organization for Standardization (2018) strongly emphasized an element like the probability of occurrences (likelihood) and their effects (consequences), the character and scale of those effects, complexity, and connectedness, time-related variables and volatility, the performance of existing controls, and levels of sensitivity and confidence should be considered when analyzing risk. International Organization for Standardization (2018) categorized the entire approach of risk identification, risk analysis, and risk evaluation as risk assessment during the process of risk management (Refer to Figure 1).

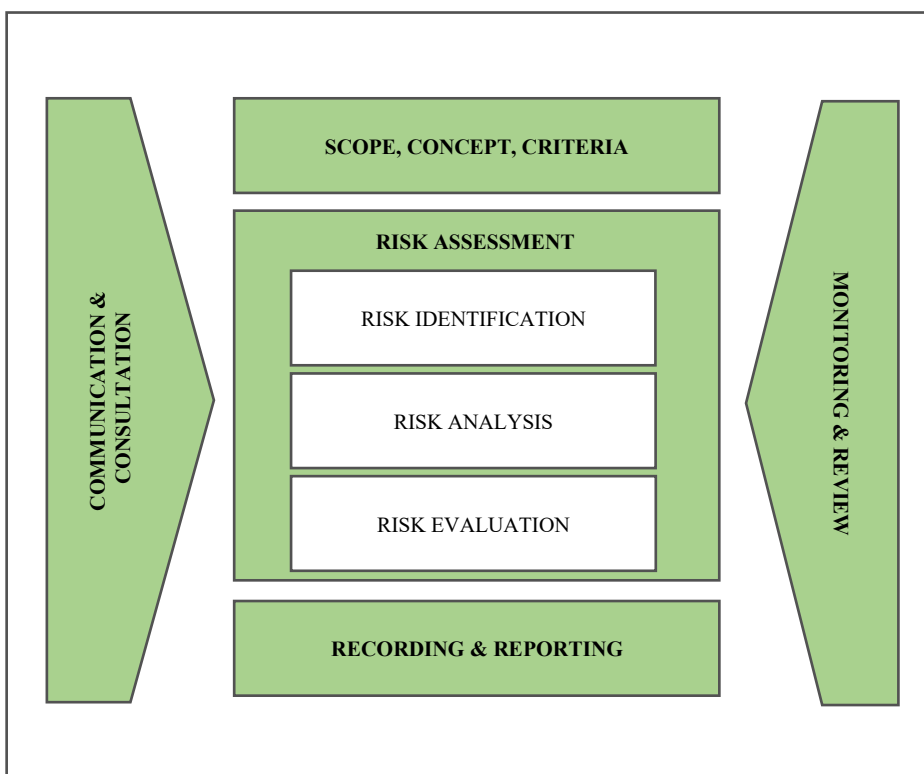


Figure 1. A Structure of Risk Management Process as stipulated in ISO 31000:2018

On the other hand, Hopkin (2018) believed the risk management process is intended to provide the framework for how an organization should handle risks, and regardless of which standard is used to present the process, most existing models provide the same basic work structure. For risk management to be useful, it must have several crucial features while offering specific results. It must comply with the company's legal roles and guarantee that significant risks are adequately managed. Furthermore, fundamental procedures of risk management need to be effective as well as efficient, and processes for making decisions need to give proper consideration to risk issues. To take full advantage of the risk management approach, all the factors should be incorporated into the formulation and execution of the risk management frameworks. Risk management entails several essential elements, including risk identification, risk assessment, risk evaluation according to predetermined standards, and risk mitigation for major risks (Hopkin,2018). systems, coordinating possible risk responses, analyzing risk execution, and evaluating the effectiveness of the risk management process. Through analyzing, observing, and assessing important dependencies, risk management could boost the efficacy of an organization's fundamental procedures. As mentioned by Hopkin (2018), risk analysis is one of the essential steps in the comprehensive risk management strategy to help organizations gain competent results in decision-making. It consists of the process of recognizing the essence of risk and determining the frequency (likelihood)



and possible effects of recognized risks (severity). Risk-management procedures that lack rigorous risk analysis may be misguided, ineffectual, or a waste of resources, as well as confronting obstacles such as subconscious prejudices, data scarcity, and the difficulty of forecasting interconnected risks.

Therefore, risk analysis and risk management must complement each other. Risk analysis will give decision-makers the vital knowledge that is needed by the key players to plan in advance and monitor risk management strategies. Together, both risk analysis and risk management provide a continual process for protecting a business's resources, credibility, and sustainable growth. In layman's words, risk management is closely related to other disciplines of management since it focuses on defining or determining objectives, acquiring necessary details about the nature of the issue and the environment, analyzing the expenditures and prospects of solutions using sophisticated analytical methods, and recognizing the option that is most applicable with both the aims and objectives. It is also a method that fully utilizes the resources of mankind, both financial and physical to recognize, analyze, manage, and control the financial resources to minimize a firm's pure loss exposures.

#### **D. An Overview of Warehousing Business Operation**

Warehousing is one of the vital components of the supply chain and has a long and illustrious history that goes back hundreds of years. The phrase "warehouse" was first recorded during the 1300s in Great Britain and has been defined as a structure or space used to store items or materials (Seprényi *et.al.*, 2022). The core operations of the warehousing business field have remained consistent throughout the years, encompassing activities such as accepting commodities into the warehouse, monitoring order transactions, resupplying, and providing value-added services just before products are dispatched from the warehouse (Department of Standards Malaysia, 2019; Industrial Malaysia, 2020; Ministry of Transport Malaysia, 2021). Additionally, the Malaysian Ministry of Transport (2021) also recognized a warehouse as a transfer point in which all commodities will be received and then dispatched as immediately, effectively, efficiently, and systematically as possible.

Notably, to meet the demands of the current twenty-first-century economy, the warehousing business industry is constantly going through its struggles. Companies of all kinds and sizes, including small enterprise startups to multinational corporations are reaching out for their third-party logistic provider (3PL) warehouse service providers to offer beyond simple storage solutions. It is critical in sustaining the industry's performance since it helps optimize the effectiveness of current supply networks and also prevents risks and disturbances. Therefore, in contrast to the earlier warehousing business operations, certain warehouses in the contemporary period have begun to assemble and pack items while they are being stored, demonstrating that warehouses are now more advanced and utilized for more than merely storing activities. To satisfy the ever-changing needs of trade and commerce, warehouses have developed from modest beginnings to cutting-edge, intelligent buildings. Nowadays, warehouses are gradually incorporating flow-through facilities and services that would provide value-added activities or customer-specific services well before products proceed their route across the entire supply chain.

In the context of the Halal industry, warehousing is stipulated in MS 2400:2019 (Part 2) Halal Supply Chain Management System- Part 2: Warehousing – General Requirements (First Revision) as one of the elements in the Halal supply chain. In a Halal warehouse, it is crucial to prevent any contamination since there is a chance that cross-contamination can happen during the processes (Shariff *et al.*, 2020). This determines that the Halal warehousing operations must put a high priority on maintaining Halal and non-Halal items separately, mainly to eliminate any contamination and comply with Islamic laws and requirements. Halal warehousing can also be recognized as the level of customization and separation in the warehouse because of the realization of the commitment and willingness of the industry players to particularly implement the Halal requirements in their warehouse's activities. To distinguish between Halal and non-Halal goods during the transportation, storage, and other processes, Halal goods must be handled more meticulously to shield the Halal integrity from any contamination and mistreatment. (Ismail *et al.*, 2023). Types of equipment and facilities during the handling process of non-Halal and Halal commodities must remain apart from each other from the initial stage of the process until they arrive at the end user. This requires employing different equipment including forklifts, containers, and room storage for both product categories. Therefore, Halal warehousing might have a slight difference compared with the existing traditional warehouse service providers which strongly eliminates any possibility of cross-contamination with *najis* or non-Halal items along the supply chain.

## E. Warehousing Risk in Halal Supply Chain

Similar to other supply chains, Halal supply chain activities are also subject to being exposed to various risks at various stages. The risk of fire in the warehousing industry is extremely high and needs a lot of attention necessitating extraordinary safety preventive measures that may even go beyond those mandated by law. Generally, fire is typically the one that has the worst adverse effects on the warehousing business industry, but it does not mean the only one that must be considered (Mapfre RE,2008; New Zealand Insurance, 2020). Theft of goods, unauthorized access with intent to commit a crime, environmental risk brought on by negligent warehouse management, and even damage brought on by natural disasters are all significant risks to take into account.

The most significant and common risks that must be handled by all industry players within the Halal supply chain are cross-contamination risks (Supian,2018). According to Clause 3.6.1 of the MS1500:2019 (Department of Standard, 2019), Halal food that is contaminated with matters that are non-Halal or comes into direct contact with matters that are non-Halal are also considered as *najis*, and as such, are impure according to Shariah law and fatwa. Cross-contamination risks during the process of transportation and storage of Halal products are also a situation in which the Halal product not only comes in contact with Haram substances but is also contaminated with dangerous substances during the process (Mohamed *et al.*,2013). Once consignments are delivered to another party, there is indeed a high risk of cross-contamination and a ruptured Halal chain, particularly if the receiving party does not adhere strictly to the whole Halal principle (Omar and Jaafar, 2011). According to Manzini (2012), the related issues in warehousing and transportation will have a significant effect on the quality of products when the product arrives at the consumer's destination, particularly when processing facilities and the final points of demand (consumers' places) are far apart and frequently located in different countries (e.g., food produced in Italy and distributed in Taiwan) and the allocation system in the supply chain is complicated with the involvement of many players, such as distribution facilities, supplier, dealers, etc. This is because the quality of items, the level of customer service, and the overall logistic cost are all influenced by the efficiency of storage systems management (Manzini, 2012). Therefore, contamination is significantly possible when Halal product is exposed to Haram operations as well as other dangerous substances during the transportation, storage, and handling process. Product contamination risks may also occur during a particular process of transportation and storage if the product is not entirely well managed, maintained, and kept separate properly following dedicated Halal requirements.

The study conducted by (Rishelin & Ardi, 2020) listed a few risks during warehousing activities that existed in the Halal supply chain the identified risks can lead to the Halal status being uncertain and could turn Halal products into non-Halal products on a particular Halal meat supply chain in Indonesia's downstream industry. One of the greatest risks is a lack of validation and certification of Halal status for cargo housed in logistics facilities. This is worsened by the possibility of cross-contamination with impure (*najis*), unlawful (Haram), or hazardous substances, and contamination from contaminated items or deterioration in the storage area. Next, a lack of supervision for keeping an appropriate temperature during storage, which might jeopardize the condition and quality of stored items. Furthermore, using the same types of equipment, machinery, or facilities for several processes in the logistics warehouse raises the potential for cross-contamination. In addition, there is inadequate control over daily sanitation operations in storage facilities, which increases the potential for contamination. The absence of strict monitoring during site inspections for commodities that may be contaminated with forbidden materials, or harmful compounds, or have been damaged or spoiled during storage also poses an additional considerable risk. Lastly, the absence of adequate control of real product tracking and Halal certification by a recognized Islamic or respectable certification authority jeopardizes the dependability and guarantee of Halal compliance across the supply chain.

Next, this study analyzed the research conducted by Busyra and Ardi (2020). The study discovered six dimensions of risks in the Halal supply chain, with a focus on Halal meat manufacturing. These dimensions are feedlot, abattoir, livestock, storage and handling, retail, and transportation. Several particular risks were pointed out concerning storage. Firstly, insufficient storage facilities for keeping livestock might jeopardize the authenticity of Halal goods. Yet another big concern is the failure to keep optimum storage temperatures, which are critical for keeping the nutritional value of meat. Furthermore, there is an unstandardized strategy for segregating Halal and non-Halal items within storage rooms, which may lead to significant cross-contamination.

Last but not least, issues were raised regarding the safety and cleanliness of storage facilities, involving unhygienic conditions and contaminated racks or containers in segregating Halal and non-Halal goods making it more difficult to maintain Halal requirements.

In conclusion, some researchers generate contradictory results when it comes to assessing and analyzing Halal risk in supply chains, depending on the type of organization and the processes carried out along the chain. Many studies have identified risks in the Halal supply chain, but most of the study is only accomplished in a certain activity.

#### **F. Risk Management and Risk Analysis: Its Importance to The Halal Warehousing Business Operation**

The execution of the Sustainable Development Goals (SDGs) enables the warehousing industry to reach a high degree of economic, environmental, and social security. The enhancement of economic, social, and environmental security is a result of the application of sustainable development assumptions in the company, which is determined by risk management (Wysokińska-Senkus & Górna, 2021). Risk management offers an all-inclusive approach to monitoring a company's environmental, social, and governance (ESG) performance and its impact on the SDGs (Deloitte Southeast Asia Ltd, 2019). A risk management framework could be employed to encourage strategic proactivity by highlighting the possible repercussions of sustainability-related actions, such as credibility and integrity, legal changes, or fulfilling customer needs. Innovation, inventiveness, the capacity to analyze the environment of the business, and a prompt response to new possibilities and risks are all key components of risk management quality. A risk management strategy consisting of both risk assessment and analysis is necessary due to the complex nature of the warehousing industry's environment and the requirement to adapt to changes as they happen. In the context of the Halal warehousing industry, more sustainable plans may be driven by a new collaborative approach between *Halalan Tayyiban* risk management and sustainability operations, strengthening company resilience concerning Halal-related matters for future changes. Thus, Halal warehousing companies can consider utilizing a systematic *Halalan Tayyiban* risk management since it has a broad range of positive impacts relating to quality, environment, safety, and hygiene. Analysing and managing risks before they take place is essential for building resilience and hence sustainability of the Halal warehousing business operation. It can also be acknowledged as a comprehensive tool for the Halal industry stakeholders to be incorporated as a sustainable approach to the organizational structures and fundamental business operations.

On the other hand, effective risk management will undoubtedly contribute to improving warehouse productivity and financial performance while strengthening the company's competitive advantage over other competitors (Muha *et al.*, 2019). The application of adequate risk management according to Muha *et al.* (2019), may assist players in the warehouse industry in managing risks effectively and recovering quickly from setbacks. Thus, Susanto (2018) agreed that the goal of risk management is to maximize the organization's long-term value. Effective risk management helps to improve the company's knowledge of possible risks and treats risk as an opportunity rather than a potential danger. In a dynamic and quickly changing economic landscape, using the appropriate information through the process of risk analysis at the appropriate time to see insights and make the best risk-informed decisions can help the industry player gain a competitive edge. The company can gain a lot of data through the implementation of effective risk management procedures where the data can be analyzed for valuable insights and lead to better decisions. The valuable insight through risk management so can thoroughly help the industry players to determine which risks are worthwhile to assist them in accomplishing the business objectives, and which ones will even pay off.

In particular Halal warehousing business operations, early detection of insights can minimize the risk potential and build confidence in forecasted, anticipated consequences, and maximize the significance value of the *Halalan Tayyiban* principle. Risk management will help the industry players comprehend the potential benefits and drawbacks of all factors that could influence the sustainability of *Halalan Tayyiban* in Halal warehousing business operations. Risk management will also allow Halal warehousing services to take calculated risks that indirectly accelerate Halal integrity. The outcome of the previous research reveals a significant and positive correlation between overall risk analysis and management. Risk analysis and management is the ideal approach for a company to prepare for unforeseen events that may hinder the growth and development of Halal warehousing business operations. When a Halal warehousing service provider evaluates its strategy for dealing with potential risks and then generates frameworks to cope with them, it will enhance its opportunities to turn

into a successful entity. All business activities can benefit from the implementation of the risk management and risk analysis process including the business of Halal warehousing.

## METHODOLOGY

The study reviewed Halal management publication articles related to Halal, warehouse, risks, and supply chain mainly to figure out potential Halal risks or critical factors in the warehousing business that have been published in the academic database. Having the problem of a lack of Halal management studies about risk management in the stated areas of research, the study takes the main points of what are the potential Halal risks that exist in Halal warehousing operations. A research methodology has been adopted from a study by W. Ho, T. Zheng, H. Yildiz, and S. Talluri (2015). The illustration in Figure 2 will further explain the method. First, the search terms “Halal” AND “warehouse” AND “Halal supply chain” AND “risk” for the title, abstract, keywords, and afterward main text. Second, the study reviewed the articles based on the scope and extracted the articles based on Web of Science, Scopus, Google Scholar databases, and the main popular publisher databases such as Springer, Elsevier, Taylor & Francis, and Emerald Insight. Due to the limited of Halal management articles published, other sources related to the study were included in this review such as research papers, conceptual papers, literature review papers, proceeding papers, and book chapters. Third, the criteria were decided, and it was applied to filter the articles. The criterion is based on the content in the abstract, keywords, and the title of the articles related to Halal management. Fourth, the listing of references was shortlisted thoughtfully to evaluate the relevancy of the articles that were included in the study. Finally, each article was meticulously reviewed to ensure the content of the articles suited the context of Halal management.

## CONCLUSION

The rapidly growing economic risks and possibilities around the warehousing industry have converged to create a dynamic landscape in businesses of all sizes including the Halal warehousing industry. Risk is an unavoidable element of business operations, and in an era where massive volumes of information are being handled at ever-increasingly extremely high speeds, understanding, and managing risk is a challenge for every company. Risk analysis and management are key components of each logistics operation since they ensure that possible risks are controlled while operational efficiency is maximized. Regarding the context of Halal storage, these methods have become particularly important considering that they must adhere to the rules of *Halalan Tayyiban*, which guarantees that every step is not only permitted (Halal) but also healthy and risk-free (*Tayyiban*).

Thus, to boost the business competitive advantage, preserve business market dominance, and produce greater revenues, the industry players around the world including Halal-certified warehouses' owners and operators, should consider how they can implement innovative approaches and solutions not only involving the specific business nature but also the essential nature of the commodities offered to the final user in the market. From the review conducted earlier, it is demonstrated that Halal products kept and handled in warehouses are exposed to a variety of risks and contaminants, at various stages of the process flow, before they reach the end consumers. Because risk can result in a significant loss, Halal-certified warehouse owners and operators should assess the likelihood of a series of catastrophes or other triggering events. The identification of contamination risks is a primary concern in Halal product safety and quality compliance. Identifying the risks will improve the Halal warehousing business operations and help to develop a risk-preventive approach in the industry. Hence, a critical part of the Halal-certified warehousing business operation is the identification, assessment, elimination, and/or control of safety hazards and non-Halal contaminants in various stages of the supply chain. Considering that it is impossible to eliminate all hazards, the goal is to eliminate and/or control the risk with critical and high potential risk to the lowest reasonable risk level to protect the integrity of *Halalan Tayyiban*. Given the importance and benefits of conducting a risk analysis and management of Halal-certified warehousing business operations, it is pertinent to conduct a study that focuses on analyzing the risks surrounding Halal-certified warehousing business operations so that appropriate control measures could be proposed to help eliminate and/or control the risks, be it safety risk or Halal-related risk. While HACCP, GMP, and GHP are commonly used to prevent food contaminations from occurring, *Halalan Tayyiban* Risk Management Plan (HTRMP) can be used to analyze the potential risks of contamination along the Halal product supply chain, particularly for Halal warehousing businesses, starting from the point of receiving clients request until the end consumers, to prevent



contamination of the Halal product with safety hazards, *al-najs* and non-Halal elements from happening. These in turn will help to sustain the significant value of *Halalan Tayyiban* in the Halal-certified warehouses. Future research is also suggested for exploring deeper into the disciplines of Halal warehousing and risk analysis by focusing on regional comparative research and constructing comprehensive risk analysis and management models with the integration of the *Halalan Tayyiban* principles. By filling these research gaps, stakeholders can guarantee that Halal warehousing operations did not simply fulfill Halal requirements only, but also the principle of *Halalan Tayyiban*, mainly to sustain the ongoing reliability and sustainability of the global Halal industry.

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