



**SUPPLIER ASSESSMENT FOR SUPPLY CHAIN PERFORMANCE AND EFFECTIVE
FOOD SAFETY IMPLEMENTATION: A FRAMEWORK FOR INDONESIAN HOTEL
BUSINESS**

Oleh

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Abstract

Purchasing raw foods materials that are used to make our product must be carefully controlled. Selecting and evaluating the right food supplier today has become much more critical and complex. Involving process of selecting the right supplier can help many food industries and restaurants meet or exceed regulatory standards, drive customer demand, and build a strong brand reputation of quality products. Quality and safety for ingredients, products, and packaging are mandatory requirements for every food business. Choosing a good supplier is a critical business decision. Consequently, the supply chain team has needed to identify choosing the right supplier, as well as several best practices in the food industry or restaurant. This paper's objective is to frame working best practices on food supplier selection and, assessment as part of supply chain sustainability and food safety implementation. Establishing close working relationships with foods supplier and providing them with high standards also providing feedback on their performance would be part of effective supplier programs in food safety assessment. Some criteria that should be provided by our food supplier were considered as approved suppliers such as purchasing specification, quality system compliance, Regulatory compliance, and certificate of analysis. The study found that trust and communication are key elements in establishing strong working relationships with foods supplier. Working relationships with food suppliers have become a competitive advantage for Food Industries and Restaurants looking for long-term economic success. Trusted food suppliers were described as communicating effectively and demonstrating a willingness to work collaboratively. Foods suppliers who communicate directly and clearly are more effective in implementing Food Safety assessments.

Keywords: Food Supplier, Supply Chain, Food Safety, Purchasing Specification, Quality System Compliance, Certificate Of Analysis

Relevant food business stakeholders frequently demand that organizations include sustainability objectives in all aspects of food supplier selection in their supply chain management procedures. In-order to pick food suppliers in a sustainable manner, both socioeconomic and environmental

considerations must be taken into account. The idea of selecting supplier on their social, economic, and environmental antecedents arise from the need to achieve sustainable development as food business set towards leanness and competitive advantage. Companies are required to plan and organize



internal processes to prevent customer vulnerabilities and design resources and processes in a way that integrates sustainability requirements. Supply chain management capabilities, including supplier selection. Although the source is not They constitute an essential component of an organization's internal supply chain infrastructure, and their actions play a crucial role in facilitating its realization. Improve your organization's cost savings and achievement of social and environmental goals. Additionally, there are significant benefits for companies to deepen their supplier selection process. economic incentives (Nsikan et al., 2022). Organizations, like all other stakeholders, must add value and meet their needs each stakeholder in the supply chain has its own interests and sustainability concerns. For instance, regulatory bodies prioritize the optimal utilization of natural resources and human resources, while also demonstrating some level of concern for work-related health and safety issues. Conversely, customers exhibit a greater preoccupation with the potential discharge of hazardous gases and waste liquids across the whole lifecycle of a product, from its development to its ultimate usage. Hence, it is feasible to establish collaboration across many stakeholders, encompassing both internal and external entities. This also increases pressure on central organizations as well as other supply chain partners. Incorporating sustainability practices into business operations (Saeed & Kersten, 2019).

The goal of Supply Chain Management (SCM) is to: customer demands. The purpose of supplier selection is to find a supplier. A suitable supplier who can supply accurate quantities providing products at the right price, at the right time, at the right place and choosing the Right Supplier Can Enable Significant Cost Savings Reduce corporate purchasing costs and improve efficiency. Different elements can be used for selection delivery. So far, the price of the product has been the main concern Supplier

selection process. However, one factor provider Selection policies have a negative impact on company performance. The company's supplier selection process has been established since his 1980s. Reform from basic raw materials and consumables to pools potential suppliers. Supplier selection therefore plays an important role A key role in the procurement process. Essentially, supplier selection is a decision-making process aimed at reducing the size of the first group. Guide potential suppliers to the final selection. The ultimate choice is the supplier selection process usually has multiple purposes. Corporate decisions are influenced by a variety of criteria. Several Criteria Decision Analysis (MCDA) is intended to make decisions Some conflicting goals. That review unfolds below Applying MCDA Techniques in Supplier Selection (Almasi et al., 2021). Choosing a convenient supplier can save you a lot of money reduce purchase costs while increasing flexibility, reliability, and more product quality. Supplier Selection (SS) was also recognized as one of them. Important aspects of industrial decision-making and that help companies develop a path to effective supply chain implementation. Conversely, the choice is inappropriate suppliers can cause significant product loss quality and supply chain performance (Ghosh et al., 2022).

The issue of supplier selection has been extensively studied in the literature, including a set of tools to guide it. A decision maker to deal with a problem. Recent reviews agree and highlight the popularity of multi-attribute decision-making techniques (MADM) in addressing supplier selection problems in various fields. Of the main motivation is the power of MADM tools to understand complex decision-making processes. When multiple attributes and alternatives exist. The problem is similar to hierarchy. A predefined number of alternatives are evaluated based on multiple (possibly conflicting) attributes. Of this process involves a two-step approach: Assign attribute weights using specific weights MADM tools



(e.g. Analysis Hierarchical Process [AHP], Best Worst Method [BWM], Weighted Average Methods [WAM]) and (2) Evaluation of alternatives using the same or different MADM tools(e.g. a prioritization technique [TOPSIS] by similarity to the ideal solution), such that hybrid method. The second part of the process is very case-specific (ie choosing the best supplier) for a specific problem). Most models incorporate a fuzzy environment into the MADM problem to address data inaccuracies and uncertainties. Although concerns have been raised about its inclusion, especially fuzzy aggregation in AHP(Mantos et al., 2023).

Supplier evaluation is a process that guides companies select your preferred supplier. There are two main processes in this process the goal is to reduce and reduce all purchasing costs. Increase the overall value of your purchase about it the costs (such as time and cost) of evaluating a supplier. travel budget, businesses typically evaluate these providers who is most likely to qualify for the purchase they formally, the company will send a team of experts to this process. Evaluate a variety of criteria, down to the location of the supplier, elements for detailed evaluation (Abdolshah, 2013). This study explored supplier selection and supplier management issues related to hotel outsourcing in Indonesia. The entry of multinational hotels into the market has encouraged competition, which has led to the hiring of specialist firms (Hiamey & Hiamey, 2020). Lack of research on supplier selection and management in both hotel literature and other areas in the field of outsourcing and research, qualitative case study design. In addition, it is also possible to get multiple data from multiple sources repeatedly elicit the multiple perceptions and meanings necessary to gain a deeper understanding of a subject. The case study design was considered adequate. Outsourced also participated in the survey. The hotel was in the 3-5 star categories. **These hotels have a management system that**

allows them to work on outsourcing. Usually the following hotels the 1- and 2-star categories are smaller, family-owned establishments, usually run by Indonesian owners.

Food safety assessment (FSA) was required to maintain and ensure the implementation of the food safety management system is effective compliance, it also related to food supplier selection and agreements (Ma et al., 2019). Selecting the good food supplier means we make a relationship starts by defining what we are required of that supplier to be considered an “ Approved Supplier” The first step is telling a potential supplier exactly what you want in the form of a purchasing specification. Having many suppliers can reduce control over food safety. The reduced control of sourcing raw materials from many suppliers can outweigh its economic benefit. An important part of a good food safety implementation depends on knowing that suppliers understand and assist in controlling hazards in a facility’s products. Performance measurements are made using up-to-date and accurate information. Supply Chain Management Benefits Organizations providing strategically aligned metrics that provide insight into process performance (Ramos et al., 2022). By having an agreement with the supplier, the supplier shares responsibility for the safe final product. Share as much information as possible with suppliers when developing and running the facility’s food safety system. Good communication helps ensure that the facility’s food safety information is up-to-date and correct.

This research considering to make a framework concept in accordance with food supplier selection and the performance measurements along with their contribution into food supply chain and food safety implementation with specific area in Indonesian hotel business. There have been studies on supplier selection, however literature lack and integrated understanding of their



contribution into food supply chain and food safety implementation, representing an important knowledge gap that need to be filled. We purpose this study to establish an supplier assessment framework for its performance and food safety implementation.

PROCEDURE

Food safety can never be fully guaranteed except by root application. A high level of food safety can be achieved through an approach from root cause analysis to development of comprehensive preventative measures. This is a root cause analysis as opposed to the main root cause analysis of the incident (Azevedo et al., 2014). This is an anatomy exercise that requires detailed investigation take action on an incident to fully understand the incident . The problem that caused the incident and requires a systematic approach. A common method that uses for Supplier Food Safety Assessment (FSA) includes:

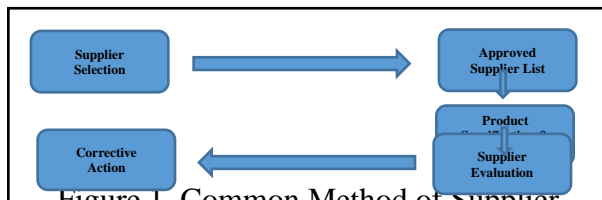


Figure 1. Common Method of Supplier Assessment

This framework of supplier selection and assessment was taken from best practice method of 4 and 5 start Indonesian Hotel which they implement the food safety management system according to Food Code standard as part of good hygiene practice in their operational.

Supplier Selection

This step was aimed to ensure that raw materials, services, and other materials received from suppliers are safe with regard to contaminants that can make food unsafe include food poisoning bacteria(viruses, bacteria, protozoa), parasites, chemical contaminants, natural products, biotoxins or contaminants) that might be increased the risk of infection along with capacity to manage food safety is in place remain limited commonly the food industry and restaurant in Indonesia was

classified into medium-risk material, high-risk material, and packaging(Nordhagen et al., 2022a) . Some basic requirements for food supplier selection are listed:

- What type of food safety system they have in place?
- Are the product manufacturers or wholesale warehouse?
- GMP inspection (cleaning of equipment, storage condition for dry food, chilled food, and frozen food, facility, loading delivery, personal hygiene, waste management, pest control, (Fig 2.).

Supplier Approval

This process was concerned with decision to ensure food safety have focused on performing hazards through supply-side risk management, resulting in a diminished consumer view of food safety (Isanovic et al., 2023). Once they approved they were listed in the approved supplier list. Some approved supplier lists should include:

- What product the supplier is approved for
- Detail of contract information including individual contact, name of manufacturer or wholesaler, and emergency contact in case of recall.
- Date approval and date supplier started working in our facility.

Product Specification and Controls

Ensuring proper production quality and health safety in mobile catering establishments Impact on intervention, especially the need to build on current beliefs and practices of consumers and providers. Make food poisoning prevention a more important food issue from the perspective of food safety selection (Nordhagen et al., 2022). This program should ensure that all incoming material is meet all specifications, such as the important food safety characteristics below:

- Chemical.
- Physical.
- Microbiological.
- Sensory.
- Allergenic.



f. Visual.

They may also include required or allowed (numerical) limits or ranges for the test results.

Supplier Evaluation

Ensuring proper production quality and health safety in mobile catering establishments is determined by the specific nature of the work at that type of facility. This type of work is characterized by difficult working conditions and lacks regularity. Preparing food and implement hygiene measures. Facilities are often inadequate production and delivery area, lack attention is paid to ensuring food quality and safety. Non adequate number of employees employed, lack of operation technology and staff with sufficient specialized training, food hygiene, staff rotation is frequent, and training needs (Gastronomy, 2023).

This program was concerned into checking how well supplier controls are working, that can be observed through;

- a. Inspection of incoming materials.
- b. On-site audits supplier.
- c. Input material testing.

Corrective Action

Most food business use two basic formats in conducting business, Corrective action program: CAR or corrective action report initiated for each required deviation or activity Corrective Action and CAPA (Corrective and Preventative). A behavior log that serves as a master list of all deviations (Stier, 2018). This program is used when evaluation has been done, sometime this corrective action was issued in the case of nonconformance material was come into our site.

RESULT AND DISCUSSION

Supplier Selection

In Indonesia, food suppliers could be categorized as a manufacturer and wholesalers. Some were established with Food Safety Management Systems within either manufacturer or wholesaler as we call big chain suppliers, others we called middle suppliers,

and small suppliers (Z. Chen et al., 2022). In terms of supplier selection as part of food safety assessment, they were rarely meet any nonconforming findings. Since they were fully concerned about food safety requirements(Ovca et al., 2018). What we need to concern is when we deal with suppliers that we need their products but in terms of food safety assessments were needed to be developed as commonly called middle supplier which is their supply of local or traditional foods, such as seasoning, cookies, traditional set menu (Table 1).

Table 1. List Priorities Food Supplier Assessment

Requirements	Minimum Score Achievement			
	1	2	3	4
Storing method				
Facility condition				
Personal Hygiene, training and health				
Delivery Management				
Waste and pest control				

Through this matter some food industry or restaurant were classified all various food supplier into some categorized, such as ranked or scored. These methods were helpful in term that they can purchase some needed specific food but still hold down any overcome issue regarding food safety implementation. In regard to big supplier we would not be needed many effort to explain further dealing with the food safety requirement, since they were aware and implemented all the food safety requirement, but in term of middle and small supplier some point due to food safety requirement would be need further communication and would sometime develop their performance with food safety implementation to minimize safety risk come into our production area and more so over eliminate food outbreak. Some food industry or were classified food supplier into certain



scoring, through this scoring they would be focused on how their monitory food supplier in other way they also would be needed to develop food supplier performance(Singh et al., 2016) (Fig.3).

Table 2. Scoring Simulation table on Food Supplier performance

Category	Total Score	Note
Big Supplier	Min >75%	Verification will be held per 1 year
Middle Supplier	Min 74-60	Verification will be 6 months after listed in the supplier approval list or any nonconforming high risk issue.
Small Supplier	Min 59-50	New prospect suppliers were get food safety introduction as shortly they listed in the supplier approval list

Supplier Approval

Suppliers approval list are needed to be documented as this process was came after initial assessment as part of supplier selection. Mostly in food industry the list of food supplier was categorized into high risk food supplier, medium risk food supplier or low risk food supplier (Angelova et al., 2015). High risk supplier were mostly for frozen products, meat, fish, poultry and ready to eat foods (RTE), example of medium risk food is dry food, grain, floured. In fact high risk food supplier were listed to be the most supplier that need to be controlled wither in the initial assessment or during delivery processed/incoming process (Lavelli, 2021). Through this list also we have to know whether they have food safety program

or any appropriate quality control system(Courtney et al., 2016).

Table 3. Categorized Food Supplier

Food Supplier	Product Example
High Risk Food Supplier	Cooked meat and poultry, dairy products, egg product, shellfish and seafoods
Medium Risk Food Supplier	Fruits, vegetable, juices, canned food, butter and confectionary
Low Risk Food Supplier	Acidic food, dry food, preserved foods, food with high sugar

Through this supplier approval list we would be needed a date of approval and signature of person in charge since this date was indicate the food supplier were started working with the contracting facility and know the person in the contracting facility responsible for this list (Yazdani et al., 2022).

Product Specification and Controls

Product specifications mean that a product must meet acceptance criteria or expectations(Huddiniah & Pradana, 2023). Which is meant refer to the specified limits for the amount or presence of contaminants, impurities or foreign material. This document will become an important control tool for the facilities which is describe the name ingredients, kind of packaging material, or chemical also the most important this is specification of acceptance criteria or reject levels(Bourquard et al., 2022). Most of incoming products were expected to be conformance with the standard but in fact some specification factor might not meet expectation in the other hand we need this product immediately to use(FDA, 2017). Here is some critical control would be needed in term we make critical control that should be conformance with the specification without any tolerance. These points should be checked and documented in every incoming product.



Table 4. List of Mandatory Point During Incoming Product Inspection

Category	High Risk	Medium Risk	Low Risk
Physical	√	√	√
Chemical	√	√	√
Product	√	√	√
Temperature	√	√	√
Personal Hygiene & Equipment Sanitation	√	√	√

Note √ : comply with product specification

Incoming material inspection will be required Certificate of Analysis (CoA) for each product, visual inspection and analytical laboratory testing(Lippa et al., 2022). In real case CoA or laboratory testing were stated that the result was applied for certain period of time, so we have to accommodate that these document would not be need in every incoming process.

Supplier Evaluation

Verification was part Food Safety requirement, in this case we need to evaluate supplier which is mean to evaluate their performance during contract working (Causil & Morais, 2023). This evaluation could be checked during inspection of incoming materials (Fig 5.) and on-site audits of supplier with the obtained duration and score right after the selection is done (Fig 3.), input material testing combination all of them which all parameter should be checked by qualified personnel. In supplier audit, person in charge or person in contracting facilities visit the supplier’s facility. For products with higher food safety risk, supplier audit help maintain safety controls over incoming material, it should be confirmed for management commitment that, supplier facility and equipment are well maintained, food safety system, manufacturing quality program, regulatory requirements (Lavelli, 2021).

Table 5. Food Safety System Applied at Restaurant and Food Industry in Indonesia

Food Safety System	Description	Note
ISO 2200	Food Safety Management System	Accredited by certification body
HACCP	Hazard Analysis Critical Control Point	Accredited by certification body
GMP	Good Manufacturing Practice	
Piagam Bintang 1	Good Manufacturing Practice	Certified by BPOM
Piagam Bintang 2	Good Quality Practice	Certified by BPOM
Piagam Bintang 3	GMP and HACCP	Certified by BPOM
Sertifikasi Laik Sehat	Good Caterer practice	Certified by Health Department

Corrective Action

Corrective action would be needed when non-conformance was found during incoming delivery or evaluation audit. This non-conformance information is sent back to the supplier and they are then required to investigate and find the cause of the deviation or problem. Food supplier need to provide documents showing that the problem was found and corrected. These documents should prove that steps were taken to prevent the problem from reoccurring(NICOLAU, 2014; Stier, 2018). Usually document may include inspection checklist, operator training records or a change to the process. A corrective action log confirms that the facility follow up on issues about supplied products. It also allows the facility to track any continuing problems in follow up with the supplier in question(Prata et



al., 2021). We need also to define any corrective action when non-conforming were happen during delivery product from supplier. In this case we need to control what action would be need to be taken effectively reduce or get rid of the hazard and define what is critical limits and corrective action was addressed what should be done if the control measure fails and or the critical limits are not met(H. Chen et al., 2020).

Table 6. Corrective Action Table for Many Issues During Receiving Material

Hazard	Control Measure and Critical Limits	Corrective Action
Presence and growth of harmful bacteria	Accept deliveries from reputable supplier at a temperature that will discourage the growth of harmful bacteria. Food collected must be transported in a way that will ensure that the temperature on arrival will comply with food specification	Decide if food should be rejected. Review supplier Dispose of unsafe food Review collection practice or methods of transportation Reject food beyond “use by” date and review supplier
Cross Contamination	Keep raw and cooked/ready to eat foods separate use safe handling practice	Reject food which may be contaminated Review delivery methods Review staff training
Contamination from vehicle and equipment	Make sure that delivery/collection vehicle is clean Make sure that food is protected/covered	Reject food which may be contaminated Review supplier Review staff training

CONCLUSION

A good working relationship between buyer and food supplier can increase long-term partnerships, and improve the operation and food safety implementation as a whole for the mutual benefit of all parties involved as establishing a good supply chain system.. However, suggested that the degree of good working relationship that develops between buyer and food suppliers are likely to be more improved by continuous improvement and commitment among them in implementing Food Safety Management System all pre-requisite and procedure need to be applied in all process and every nonconformance issue would need to get corrective action to avoid re-occurrence.

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