Halal Operation Assessment using Quality Function Deployment in Indonesian Cosmetics Industry

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Abstract

Nowadays, ensuring halal in cosmetics products is necessary for Muslim consumers and need are guaranteed by halal certification. The population of global Muslims were increasing, and awareness of non-Muslim countries was also increasing. These phenomena impact increasingly halal products consumption, including Indonesian customers as the most significant Muslim population in the world. Halal operation assessment for the Indonesian cosmetic industry is needed to ensure the halalness in each critical halal point following the halal assurance system. This research aims to apply multi-based QFD and slight modifications related to halal operations in the Indonesian cosmetic industry. In Matrix 1, product design-regulatory and quality control for incoming material were identified as the top 2 highest in halal process. In matrix 2, SOP-documents and halal cosmetic products were determined as the most halal critical factors. In Matrix 3, Halal training-campaign and improvement operational programs as prioritization improvement programs that are recommended to be conducted in Indonesian cosmetic companies. The multi-phased QFD model can be applied to assure halal cosmetic operation and support the prioritization of the halal improvement program. The halal operations assessment using a multi-phased QFD model will benefit the Indonesian cosmetics industry, intending to improve halal operations.

Keywords
Critical Halal Point, Halal Assurance System (HAS), Halal Cosmetics, Halal Operation Assessment, Multi-phased Quality Function Deployment (QFD)

1. Introduction
Nowadays, halal cosmetic products have increasingly shown their existence in the cosmetic industry market, and this can be driven by increased awareness and consumer needs for halal cosmetic products (Briliana and Mursito 2017). Halal products attract Muslim consumers' attention, but non-Muslim consumers are also interested in using halal products (Ngah et al., 2015). Religious knowledge and awareness of halal cosmetic products affect the consumption patterns of Muslim consumers in India in buying cosmetic products that have a halal certificate (Shahid et al., 2018). Halal cosmetics focus on concern to halal raw materials in the manufacturing process and the preparation, packaging, distribution, and storage processes that must be ensured that they are not contaminated with haram material (Sugibayashi et al. 2019).

Indonesia is the most significant Muslim population globally, which is 229 million Muslim people (World Population Review, 2020). Religion affects the lifestyle of consumers, which in turn will affect consumer behaviour in decision making (Delener 1994). Data from BAPENNAS shows that the national cosmetics industry lists an increase of 20 percent or four times the national economic growth in 2017 (Komite Nasional Keuangan Syariah

2018). Skincare products are predicted to grow by 31 percent during 2017-2022 and lead in the Asia Pacific region (Komite Nasional Keuangan Syariah 2018). In recent years, consumers focus on considering the quality of the products they use and the integrity of a product or the halalness of the product (Ali and Tan 2017). Therefore, nowadays, Muslim consumers are increasingly aware of choosing halal products by Islamic law (Wilson et al., 2010). A perfect opportunity for manufacturers to do the proper strategic steps to provide halal products that consumers need because of Indonesia's tremendous Muslim market opportunities (Wilson and Liu, 2002).

Cosmetics companies are required to have a document called the Halal Assurance System (HAS) which can be used as a reference in monitoring the company's operational processes so that they are guaranteed to produce halal cosmetic products (LPPOM MUI 2008). Conducting a halal assessment of the production and operation system holistically that involves all halal attributes is necessary to produce products that can consistently guarantee their halalness to increase consumer satisfaction (Shahbaz Khan 2018). The Quality Function Deployment (QFD) method is a proven qualitative approach for developing new products and testing the quality of olive oil products (Bevilacqua et al., 2012). The Quality Function Deployment (QFD) method has also been used as an assessment model to identify halal critical points in a product and its improvement program (Vanany et al. 2019). Halal products are not only associated with food and beverage products, but pharmaceutical products and cosmetic products must also be adequately considered about their halalness (Ngah and Ali 2019). Henceforth, the Quality Function Deployment (QFD) method can also be developed as a halal assessment model for cosmetic, pharmaceutical and food products (Vanany et al. 2019). The Quality Function Deployment (QFD) method has been used to improve the quality of Lip product cosmetics (Kurniawan and Nahdi 2020). From several studies on halal cosmetics that have been done before, there has been no research that discusses making a halal operation assessment model in the cosmetics industry in Indonesia. Therefore, in this study, research will be carried out on making a halal operation assessment model using the Quality Function Deployment (QFD) method to identify the critical point and its improvement in the halal cosmetic industry in Indonesia.

2. Literature Review

Applying QFD for cosmetic product development have been carried out on the Lavine Beaute Lip product (Kurniawan and Nahdi 2020). The results showed that the quality of cosmetic products by the standards of the Food and Drug Supervisory Agency (BPOM) is the most important thing for consumers. The QFD method can also be developed as a model for assessing the halalness of a product. Vanany et al. (2019) using the multi-phase QFD method as an assessment model for the chicken meat processing process in a chicken slaughtering industry. Figure 1 shows the slight modification of the multi-phased QFD model for halal assessment by Vanany et al. (2019) to be applied in the Indonesian cosmetic industry.

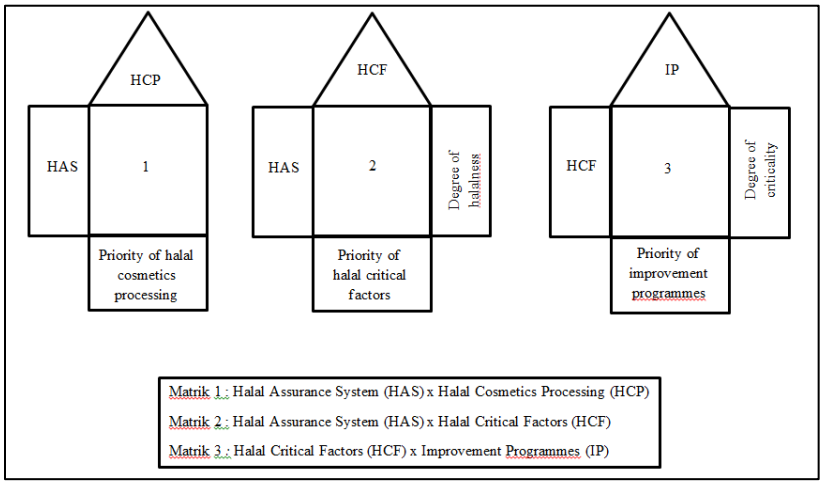

Figure 1. Halal multi-phased QFD (Source: Vanany et al. 2019)

2.1 Matrix 1

The formula for matrix 1 contains the Halal Assurance System (HAS) as an attribute and the Halal Cosmetics Processing (HCP) as a technical response. The Halal Assurance System (HAS) integrates materials, processes, products, human resources and procedures to produce halal products and ensure consistent and sustainable halalness (LPPOM MUI 2008). The risk assessment application is not the only urgency in a single company but also an urgency on the supply chain process (Vanany and Zailani, 2010). Vanany et al. (2019) stated that the Halal Assurance System (HAS) is sourced from LPPOM MUI documents and the Voice of Auditor in the company, namely the Head of factory quality and Coordinator of the internal halal auditor. Meanwhile, the Halal Cosmetics Processing (HCP) is a series of processes from start to finish, starting from the pre-raw material (plan) stage, the raw material stage (source), the production stage (make), the delivery stage to the customer (delivery) and the reject product return stage (return).

2.2 Matrix 2

The formula for matrix 2 contains the Halal Assurance System (HAS) and Halal Critical Factors (HCF) as a technical response. Halal Critical Factors (HCF) is an element in a series of production and operation processes where cosmetic products have the potential to become haram (LPPOM MUI 2008). Several types of the main halal critical factors in previous research such as materials, products, employees, and equipment are also used in this matrix 2 (Vanany et al. (2019), Vanany et al. (2020) and Wahyuni et al. (2020).

2.3 Matrix 3

The formula for matrix 3 contains Halal Critical Factors (HCF) and the potential problems (Sub HCF) as an attribute, as well as Improvement Programs (IP) as a technical response. Potential problems were derived from HCF. The Improvement Programs (IP) are the alternative solutions that can be applied to reduce or eliminate risks that may occur at points considered to have critical potential in ensuring the halalness of cosmetic products.

3. Research Method

A case study is adapted to conduct this research to apply multi-phased quality function deployment. (Yin 1994) pointed out that a single case study needs depth to investigate to find the depth results and discussion. Several interviews were conducted to identify and determine some factors, attributes, and value preferences in Matrix 1 until Matrix 3. In matrix 1, the halal assurance system attributes and halal cosmetic processing were determined by two halal internal auditors, including the value of their preferences for each cell in matrix 1 in the first interview. In the second interview, two halal internal auditors determined critical halal factors and the value of their preferences for each cell in matrix 2. Finally, Matrix 3 also completed an interview with two halal internal auditors.

4. Case Study

4.1 Data Collection

The halal assurance system (HAS) integrates materials, processes, products, human resources and procedures to produce halal products and ensure consistent and sustainable halalness. The Halal Assurance System (HAS) is prepared by the Assessment Institute for Foods, Drugs and Cosmetics Indonesian Council of Ulama (LPPOM MUI), and it is implemented and maintained by companies holding halal certificates in order to maintain the continuity of the halal production process by the provisions of LPPOM MUI (LPPOM MUI 2008). In this research, the voice of auditors is from the Head of factory quality and Internal Halal Auditor. Meanwhile, the halal cosmetics process (PKH) is a series of processes from start to finish, begin from the pre-raw material (plan) stage, the raw material stage (source), the production stage (make), the delivery stage and the reject of product stage (return). The following Table 1 shows 37 points of the halal assurance system (HAS) relevant to the company's conditions.

Table 1. The attribute of HAS

Code	The Attribute of HAS
SJH-1	There is an active raw material matrix that meets the requirements of LPPOM MUI for existing products and new products that are Halal certified.
SJH-2	There is a list of suppliers of raw materials for existing or new products that meet the requirements of LPPOM MUI.

SJH-3	There is an improvement in the raw material matrix that meets the requirements of LPPOM MUI if there is an addition of raw materials, a change in supplier or a change in plant facilities at the supplier.
SJH-4	There are complete supporting documents for the halalness of raw materials in the composition of the material formulation to be registered at LPPOM MUI and creating item codes for purchases.
SJH-5	There are product designs that do not resemble haram products in terms of colour, shape, and taste.
SJH-6	Carry out the purchase of materials by the list of materials that have been approved in writing by LPPOM MUI
SJH-7	Record all purchase transactions well and keep proof of purchase complete with the brand and code so that it is easy to trace (good traceability)
SJH-8	There is an SOP (Standard Operating Procedure) to ensure that every supporting document for material halalness is valid.
SJH-9	Equipment is in a holy condition and is not contaminated with haram and najis items.
SJH-10	Equipment not derived from haram raw materials (example; brush made from pig's fur)
SJH-11	Machine wash material has approval from LPPOM MUI
SJH-12	Products made on production machines have been registered with LPPOM MUI
SJH-13	Workers understand the job description and SOP (Standard Operating Procedure) well and have good knowledge about the Halal Assurance System (HAS) LPPOM MUI.
SJH-14	The packaging supplier can prove the supporting documents to be halal
SJH-15	The packaging is shaped, smells and tastes according to Islamic law
SJH-16	On the packaging is written a list of the ingredients that meet the requirements of LPPOM MUI.
SJH-17	Warehouse facilities and production facilities are in clean condition and free from haram and najis materials.
SJH-18	Sharing facilities is not contaminated with materials that are haram and najis.
SJH-19	Warehouse facilities and production facilities are registered and have operational permits from LPPOM MUI.
SJH-20	There is an SOP (Standard Operating Procedure) that guarantees no contamination with haram and najis goods.
SJH-21	There is well-systemized and integrated documentation and recording tool
SJH-22	The product has passed the water permeability test and certified halal MUI
SJH-23	Checking process of raw materials documents by the requirements of SJH LPPOM MUI (Receiving Process)
SJH-24	Raw materials and intermediate materials are stored in tight and clean conditions and separate storage locations for materials that do not meet the criteria.
SJH-25	Periodic checks on stored materials so that the condition of the materials is always by the procedure
SJH-26	Internal halal labelling of materials to be released to the production process
SJH-27	Weighing equipment for raw materials in a usable condition
SJH-28	Separating bulk products from materials and production facilities that do not meet the requirements of LPPOM MUI to avoid contamination during the production process
SJH-29	Bulk products are packaged in tight and clean conditions and are guaranteed not to be contaminated by haram and unclean goods.
SJH-30	Separating finished goods which source from materials and production facilities that do not meet the requirements of LPPOM MUI to avoid contamination and the products are sent to the customer
SJH-31	Microbiological examinations to validate machines and equipment are carried out periodically using halal materials or media.
SJH-32	Examination of finished goods parameters includes product specifications and critical points of product halalness with the potential for cross-contamination.
SJH-33	Pests and animals were not found at the storage location, and the warehouse was clean from najis and guaranteed good sanitation.
SJH-34	The condition of the vehicle is guaranteed to be in a clean condition and guaranteed with good sanitation.
SJH-35	There is a guarantee that the vehicle is not used to distribute animal, haram and najis material.
SJH-36	Return of products that do not meet the criteria and have been sent to customers
SJH-37	The returned product is in guaranteed condition, and the packaging is not contaminated by haram and najis.

Potential problems were derived from critical halal factors based on an interview with the head of factory quality and internal halal auditor under each halal critical. These potential problems are relevant to the condition of the company case. The following Table 2 shows the potential problems in the company.

Table 2. Potential problems

Halal Critical Factor	Potential problems
Raw Material	In external conditions, there are still many materials that have not been certified halal (suppliers still have not awareness and meet the requirements for halal certification)
	The material does not include the original manufacturer's label or logo.
	Use of substitute materials in case of primary raw material problem
	The materials stored in warehouses were identified as being contaminated with haram and najis goods.
Product	The product design does not meet the regulations from LPPOM MUI.
	The product is contaminated with haram and najis materials during the production process.
	The storage of finished goods in warehouses is contaminated with haram and najis goods.
Employees	Knowledge and competence of workers regarding HAS are inadequate.
	Workers do not comply with HAS regulations in an orderly and consistent manner.
SOP and Document (Traceability)	Incomplete halal procedures include halal critical points.
	The SOP does not guarantee the implementation of HAS in an orderly and consistent manner.
	The material formulation in the halal material matrix is not updated.
	The supplier does not have a halal certificate recognized by LPPOM MUI
Equipment	Improper cleaning and washing of equipment (using media that has not been certified halal) so that it can cause cross-contamination with haram and najis materials (example: brush)
	Sharing facilities with materials or products that have not been certified halal without going through line clearance procedures
	The equipment has not been included in the material purchase list matrix
Environment	Warehouse facilities and production facilities still have the potential for unclean contamination.

4.2 Matrix 1

In matrix 1, the relative importance of 37 attributes of HAS was ranked according to the five-point Likert's Scale where 1 = Least important and five = Most important. Then the halal cosmetic process was evaluated subjectively using the following scale: 9 = “strong”, 3 = “moderate”, 1 = “weak” and blank = “non-existent (Akao 1990). The following Table 3 shows the results of the collection and data processing of halal cosmetic processing.

Table 3. Matrix 1

Code	Halal Cosmetic Processing	Absolute Importance	Per cent Importance	Rank of Priority
PKH-1	Product Design and Regulatory (Legal)	3.59	15.11%	1
PKH-2	Sourcing and Purchasing	2.25	9.50%	6
PKH-3	Receiving of Raw Material	1.37	5.78%	9
PKH-4	Quality Control of Incoming Material	2.94	12.41%	2
PKH-5	Material Storage	1.31	5.52%	10
PKH-6	Weighing	1.99	8.40%	7
PKH-7	Production	2.67	11.24%	3
PKH-8	Quality Control of Bulk Product	2.28	9.60%	5
PKH-9	Packaging	2.47	10.41%	4
PKH-10	Quality Control of Finished Goods	1.55	6.53%	8
PKH-11	Finished Goods Storage	0.72	3.02%	11
PKH-12	Delivery to Customer	0.42	1.77%	12
PKH-13	Return of Reject Product	0.17	0.73%	13

4.3 Matrix 2

The calculation of matrix 2 is the same as the calculation of matrix 1, then the halal critical factors was evaluated subjectively using the following scale: 9 = "strong", 3 = "moderate", 1 = "weak" and blank = "non-existent. Vanany et al. (2019) developed five critical halal factors for the halal assessment using QFD to improve the halal chicken meat industry, i.e. raw material, workers, procedures and documentation, equipment and premises. From the five critical halal factors developed in the halal meat industry, the head of the quality factory and halal internal auditor explained that all critical halal factors were relevant in the cosmetic industry and added one critical halal factor, i.e. product. The following Table 4 shows the results of the collection and processing data of critical halal factors.

Table 4. Matrix 2

Code	Halal Critical Factor	Absolute Importance	Percent Importance	Rank of Priority
TKH-1	Raw Material	3.72	19.74%	3
TKH-2	Product	3.93	20.83%	2
TKH-3	Employees	0.91	4.85%	6
TKH-4	SOP and Document (Traceability)	6.57	34.87%	1
TKH-5	Equipment	2.19	11.59%	4
TKH-6	Environment	1.53	8.12%	5

4.4 Matrix 3

In the calculation of matrix 3, the six points of critical halal factors (HCF) in matrix two were derived to 17 points of Sub HCF as a potential problem. The Sub HCF covers problems that exist in companies that have critical potential in guaranteeing the halalness of cosmetic products. Then the relative importance of 17 points of Sub HCF was ranked according to the five-point Likert's Scale where 1 = Least important and 5 = Most important. Then the improvement programs were rated based on the following scale: 9 = "strong", 3 = "moderate", 1 = "weak" and blank = "non-existent. The improvement programs were adapted from the halal assessment model in the halal meat chicken industry, i.e. supplier management, policy and procedures and information and employee capability (Vanany et al. 2019). Furthermore, after further discussion with the head of the quality factory and halal internal auditor, the improvement programs were developed became five programs. The following Table 5 shows the results of the collection and processing data of five improvement programs.

Table 5. Improvement programs

Code	Improvement Programs	Activities	Absolute Importance	Percent Importance	Rank of Priority
PP-1	Supplier Management Program	Monitoring and evaluating supplier performance	2.25	13.53%	5
PP-2	ETS Program	Improve information sharing and electronic traceability systems	3.32	20.02%	3
PP-3	Halal Training and Campaign of HAS Program	Improve employee capabilities by improving the quality and output of SJH training	4.97	29.95%	1
PP-4	Improvement Operational Production and Warehouse Program	Implementing 5S culture and routine maintenance at factory facilities and exterminating pests	3.81	22.91%	2
PP-5	Monitoring Document Program	Guarantee to use the updated HAS document	2.26	13.60%	4

5. Results and Discussion

5.1 Matrix 1 Analysis

Through table 4.3, the results obtained from the ranking of 13 halal cosmetic processing. The graph is displayed sequentially from left to right, starting from the process with the most critical potential to the smallest. The following Figure 2 shows a graphic of halal cosmetic processing.

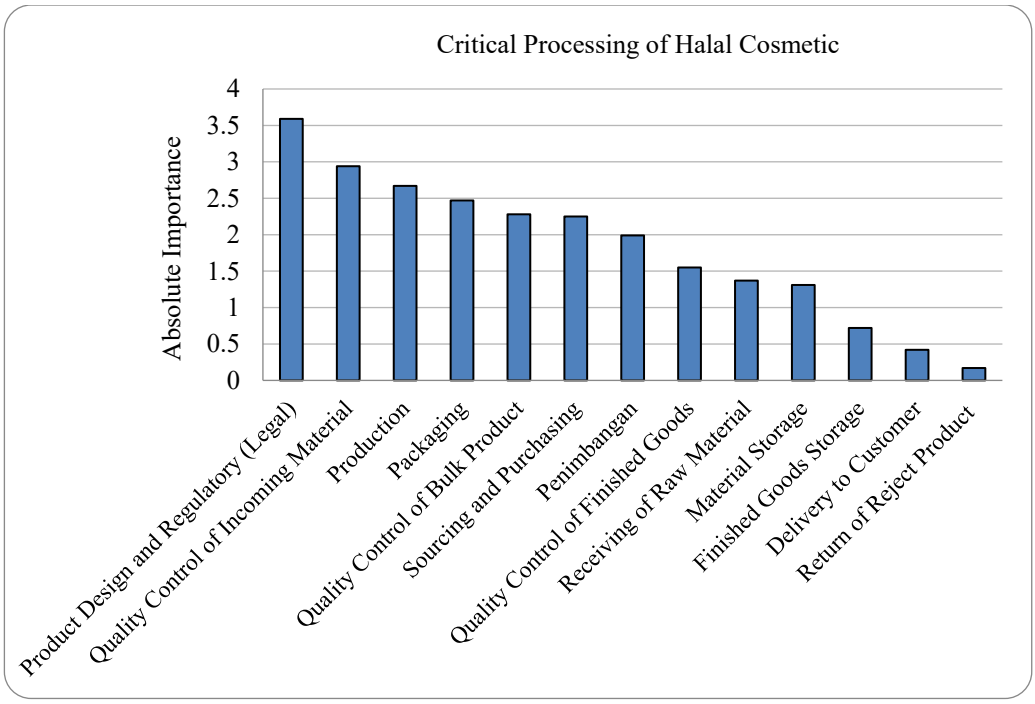

Figure 2. Critical processing of halal cosmetic

Referring to the 37 attributes of HAS, the three most critical processing are product design and regulatory (legal) with absolute and percent importance 3.59 (15.11%), quality control of incoming materials 2.94 (12.41%) and production 2.67 (11.24%). Product design and regulatory (legal) is the stage where the formulators compile the formulation of ingredients that will be used for making cosmetics. The formulated ingredients are arranged in a material matrix, and they must be ensured in good quality condition and halal status. That material will be registered and reported to LPPOM MUI to obtain a license to use. The material that is checked in this critical point determination is material that is its initial status is halal, not materials that have received previous prohibition status (LPPOM MUI 2008). Khan et al. (2020) explained that the dominant factor influencing consumers to buy halal cosmetics is halal raw materials because the raw materials contained in them will have a good impact on the health and safety of users. In the preparation process, the ingredients must not contain haram material like materials derived from pig, carrion, blood, human body parts, predatory animals, reptiles, and insects, among others. Materials derived from halal animals must be slaughtered according to Islamic law to be considered halal. Include raw materials that undoubtedly of halal status to the halal matrix is a critical process in the formulation development stage for halal cosmetics (Sugibayashi et al. 2019). In addition, the steps taken in this stage are designing the product and packaging, starting with name, shape, colour, taste and must comply with regulations from LPPOM MUI. Packaging is vital in the halal cosmetic industry. Therefore raw material of packaging must also comply with halal standards and not derived from haram material. For this case, have good collaboration with the trustworthy supplier of halal packaging is needed (Talib and Johan 2012). In case the product design or material formulation error at the beginning, it will have an impact on the following process; there is a greater risk of contamination with haram or najis materials.

Quality control of incoming material is an activity in the warehouse for receiving cosmetic raw materials. All raw materials will be checked for their physical condition and also halal documents. Raw materials that match the criteria and complete halal documents will be stored with an internal halal label sticker. If the raw materials not in accordance with procedures, they will go through a quarantine process or be put in a separate place. Dent et al. (2018) described that manufacturers must have some procedures to make sure the ingredients that used as raw material is halal and safe products. Good collaboration with suppliers is needed to ensure all raw material is being supplied is halal and proven with supporting documents and halal certification.

At the production process, all raw materials and production facilities, i.e. machinery, equipment, environment and employees, must be protected entirely from cross-contamination of haram or najis materials because production facilities are used not only to produce one type of product but alternately to produce several products with various and complex raw materials (sharing facilities). Sugibayashi et al. (2019) explained that the production process of halal cosmetics does not only consider the raw materials are halal, but manufacturers have to comply with the halal assurance system (HAS) as well in an orderly and consistent manner.

The three least necessary processing are the return of reject products with absolute and percent importance 0.17 (0.73%), delivery to customers 0.42 (1.77%) and finished goods storage 0.72 (3.02%). The condition of the finished goods has been packed in tight packaging so that minimal possibility of cross-contamination. However, process distribution has to assure that the cosmetic product always compliance in with halal conditions until the end customer. Avoid cross-contamination with non-halal material, not sharing facilities with non-halal products in the distribution process (Sugibayashi et al. 2019).

5.2 The Results of Matrix 2

From table 4, the ranking of the critical halal factor in the cosmetics industry is obtained. The graph is displayed sequentially from left to right, starting from the most critical potential to the smallest. The following Figure 3 shows a graphic of the critical point for halal cosmetics.

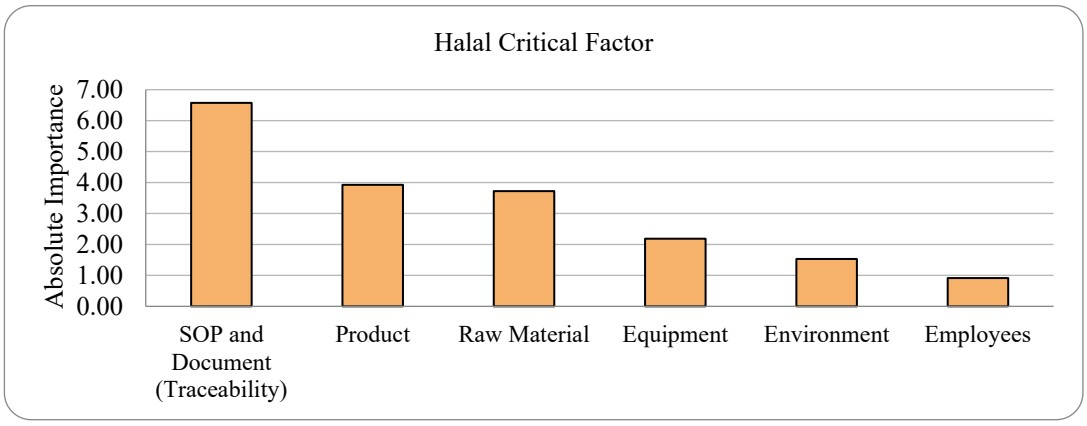

Figure 3. Halal critical factor

The three critical halal factors are SOP and documentation (traceability) with absolute and percent importance 6.57 (34.87%), products 3.93 (20.83%) and materials 3.72 (19.74%). SOP and documentation (traceability) must comply with the halal regulations from LPPOM MUI by having halal documents ultimately. Although the material is halal but does not have halal documents, the halal status of the material cannot be recognized and cannot obtain a permit to be used. Completeness of procedures and documents must be prepared and implemented in an orderly and consistent manner. There are several guiding documents on the requirements for the certification of halal cosmetics like ISO 22716:2007, OIC/SMIIC 4:2018, LPPOM MUI: HAS23000:1, ASEAN Cosmetic Directives, etc. Manufacturers must comply with the instruction on these documents to guarantee all stages start from the preparation or planning stage, production stage, storage, distribution and return of halal cosmetic products, maintenance of facilities and environments must be ensured at all times on supporting halal condition (Sugibayashi et al. 2019). On the other hand, there is a relevant relationship between SOP and documentation (traceability) in matrix two and the three most critical processing in matrix 1 (product design and regulatory/legal, quality control of incoming materials and production). In the three processing, the implementation of SOP and documentation (traceability) in an orderly and consistent manner is the primary key to creating an excellent cosmetic halal assurance. The product design and the regulatory (legal) stage is the formulation and planning stage of raw materials (before the raw materials are purchased or arrives), but at this stage, it must be ensured that all supporting documents for the halalness of raw materials must be complete and obtain permission from LPPOM MUI. At the quality control of the incoming material stage, all halal documents raw materials must be rechecked so that it can obtain halal label internal as a requirement it can be released to the processing process.

Products are semi-finished products (intermediate materials) and finished products (finished goods). The critical factors of the product are also quite relevant to the product design stage and regulatory (legal) and production in matrix 1. So that the guarantee of the halalness of the product must be strictly monitored since the product is still in the design stage until it enters the production room. At the design stage, products must not violate regulations from LPPOM MUI (which are against Islamic law), both in terms of shape, colour, taste. Meanwhile, when the product has entered the production process, all matters, including equipment, facilities and labour, must be controlled in accordance with the SOP so that there will be no cross-contamination with haram or najis materials.

Materials are the third most halal critical factor because cosmetics are produced from very complex raw materials, and there are still many suppliers who are not certified halal, so the sourcing and purchasing teams must be careful in selecting and determining halal raw materials. Cosmetics are consist of many ingredients like water, oils, surfactants, polymers, organic solvents, colourants, proteins, vitamins, plant extracts, preservatives, and antioxidants, among others. Cosmetics can be classified as innovative products that very often launch new products according to trends and consumer needs, so the raw materials needed must also be well prepared in advance, even two years before a new product will be launched. The critical factor for this material is also quite relevant to the product design stage and regulatory (legal), quality control of incoming material and production in matrix 1. At the product design and regulatory (legal) stage, all raw materials must be in a halal condition with proven complete halal documents. All halal raw materials are then formulated by the formulator team and compiled in an updated raw material matrix. During the quality control stage, incoming material is also checked for its physical condition and halal documents. And at the production stage, all raw materials released to the production stage must have an internal halal label.

5.3 The Results of Matrix 3

In Table 5, the ranking of the improvement program is obtained, as shown in the Figure 4 below

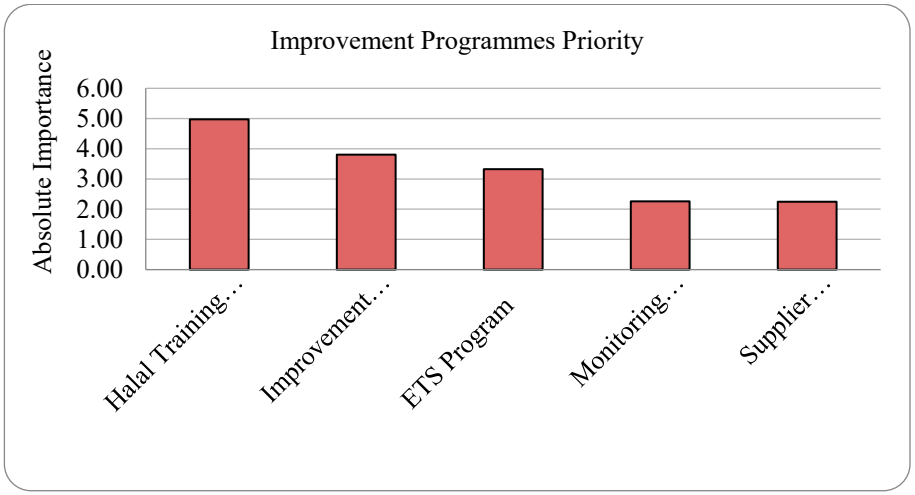

Figure 4. Improvement programs

Based on 17 potential problems in table 2, the improvement programs to improve the quality of halal assurance for cosmetic products is halal training program and campaign of HAS with absolute and percent importance 4.97 (29.95%), improvement operational production and warehouse program 3.81 (22.91%), ETS program 3.32 (20.02%), document monitoring program 2.26 (13.60%), supplier management program 2.25 (13.53%).

Halal training programs and campaigns of HAS are the most priority programs to run. Improving employee competence through quality improvement and the output of SJH training and campaigns is a goal that must be achieved by the company. Employees are valuable company assets that have a very vital role in implementing the halal assurance system (HAS) in the company in an orderly and consistent manner. Given that employees who have been given halal training but in practice have not been able to carry out this halal commitment in an orderly and

consistent manner. In addition, the campaign of HAS is also needed for employees through brochures, pamphlets, posters posted in strategic places or in critical locations. The campaign of HAS is also deemed effective through educational videos about the halal assurance system (HAS) and online training.

The production and warehouse operational improvement program is the second priority to be implemented in order to overcome problems that arise. All facilities in the factory include the production line and warehouse, must be setting correctly to avoid cross-contamination by haram and "*najis*" material. All procedures should be done clearly to assure compliance with the halal assurance system, i.e. procedures for using equipment, facilities, line production, warehouse and environment treatment (Departement of Standard Malaysia 2010). The implementation of the 5S culture and routine maintenance at factory facilities, as well as eliminating pests, are activities that must be carried out by companies with high commitment. The obstacle that has occurred in the company is the warehouse for infiltrating pests such as bats, causing "najis" and cross-contamination of raw materials stored in the warehouse. If all facilities and equipment in the plant are regularly maintained, the potential for problems like those mentioned in the example above can be reduced and eliminated.

The ETS (Electronic Traceability System) program is the third priority for companies to run. The aim of this program is to increase information sharing and information transparency. With the ETS program, the speed of access to information will also be faster. All materials or products can be traced on their status starting from the composition of their raw materials, suppliers, batches, etc., with the ultimate goal of ensuring the halalness of the material or product correctly.

The document monitoring program is the fourth priority program to be implemented in companies. This program helps to ensure that all documents and procedures of the halal assurance system (HAS) in the company are updated documents or procedures. If in the company there are findings to be revised, the findings must be corrected or updated immediately in their written documents and procedures because official documents are the primary reference for all parties to carry out all processes in order to run according to the halal assurance system (HAS) in an orderly and consistent manner.

The supplier management program is the last priority program among the five existing improvement programs. In this program, it is necessary to monitor and evaluate the performance of suppliers in supplying raw materials to companies by the procedures in the halal assurance system (HAS). Suppliers play an essential role in supplying halal raw materials, where raw materials are critical in halal cosmetics.

6. Conclusion

Halal cosmetics have significant growth and a potential market nationally and globally. Halal cosmetics become essential not only for Muslim consumers but also for non-Muslim consumers. Halal cosmetics for non-Muslim consumers can become the best choices regarding safety and quality for use. This research proposed a halal assessment model using QFD in the cosmetic industry to assess critical points in halal cosmetic processing, critical halal factors and improvement programs. In matrix 1, product design and regulatory (legal), quality control of incoming material and production were assessed as the critical process. Then in matrix 2, SOP and documentation (traceability), product and raw material were assessed as the critical points. Then matrix 3 shows results that to improve the quality of halal assurance for cosmetic products can be implemented several programs like the halal training program and the campaign of HAS, production and warehouse operational improvement program and ETS program. Awareness of employees to comply with HAS will be increasing by conducting training and campaign of HAS in a better way. Finally, this model can help cosmetic industries make improvements to ensure the halalness of the cosmetic products produced by identifying the critical processes, critical halal factors and prioritized improvement programs.

For further research is needed research using the quality function deployment (QFD) method in other cosmetic manufacturing industries and other more diverse types of cosmetics. Furthermore, it is necessary to rearrange the quality function deployment (QFD) method with more extended attributes and technical responses or combine the quality function deployment (QFD) method with other methods in making a halal assessment model in the cosmetics industry so that research results will be obtained newer ones.

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