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Halal Food Model

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The halal food trade is growing at a spectacular rate and so are concerns about its authenticity and safety. The differing halal standards and certification models used by various Muslim organizations and individuals lead to further consumer concerns. Ideally, the food certification process should have taken care of these concerns, but it has not in light of recent scandals that have impacted the halal food industry. As a direct result of these problems, halal authentication through accreditation, that is, having a respected Muslim national body that sets standards for the halal certifying bodies, has become an extremely important issue for both halal food producing companies and halal consumers. Adding to the concern are the situations where companies are self-certifying or obtaining their certification from third-party certifiers who do not follow the normative widely accepted certification standards of the Muslim community. A parallel concern about authenticity can be seen with changes occurring in the larger food industry, which faced somewhat similar credibility problems (Krishnan et al., 2017; Shafie and Othman, 2006). The Global Food Safety Initiative (GFSI) was launched in 2000 after the food industry went through a series of food safety crises. GFSI’s procedures ensure that food safety auditing schemes and accreditation systems adhere to common “benchmarks” for safety, transparency and accountability. It has now become the gold standard for third-party food safety audits and now affects all aspects of the food supply chain.

The halal certification industry can learn from the GFSI model in its attempt to strengthen and maintain consumer trust for halal. As a first step, it needs to harmonize halal standards by developing a widely acceptable set of halal food standards.
standards and a model of how a certifying agency should carry out its task. In addition, an effort needs to be made to reduce audit duplication throughout the supply chain—from farm to fork. Because at present there is no widely recognized halal standard or a model for how a certifying agency should act, there is an immediate need to develop such documents. Such a model needs to establish the standards for determining equivalency between existing halal auditing schemes, while retaining flexibility and choice in the market place. After such documents are developed, a mechanism should be developed to monitor, disseminate, and update this information by using modern communication technologies. This will probably involve:

1. The creation of a Digital Halal Database, which will list all halal certified ingredients with information about their certifier, halal certificate, and certifying agencies updates, a comprehensive list of halal certified retail and industrial products, and a comprehensive listing of recalls and other problems with specific products.
2. Regular, but unscheduled, on-site inspections and audits where the representatives of the halal supervision agency compare the database information with the products and ingredients actually found at the plants.
3. Development of experts on the production of the products and an ability to check that the plant’s operations do not compromise halal such as tracing of pipes to assure no cross-contamination.
4. Development of tamper-proof trademarked halal certification logos on products to provide traceability and accountability. The latest technologies such as scannable logos (e.g., using QSR code) on smart phones, etc. should be used (Siti Hasnah et al., 2009; Norhabibah, 2011).

NEED FOR DEVELOPMENT OF A WIDELY ACCEPTED HALAL FOOD MODEL

The market for halal products is widely distributed throughout the world. This has led to an increased demand for halal products not only by Islamic countries but also by almost all non-Islamic countries. The modern food supply chain is a global enterprise and components of the food may be grown and processed in many different countries before reaching the end consumer (Mathew, 2014; Wibowo and Ahmad, 2016). Thus, developing a food product is no longer a simple process. For example, a raw material could be extracted in India; processed into powdered form (or into an ingredient) in China; shipped to the U.S. for production; and then sold in grocery stores anywhere in the world. This increases the probability of a halal problem with foods and cosmetic and pharmaceutical products unless subject to proper supervision throughout the supply chain.

Drinkable yogurt can be used as an example of the complexity of modern foods that on the surface would seem to be “obviously” halal. Milk is obtained from cow’s using milking machines or by hand, processed and pasteurized, and shipped to a yogurt processing facility. The milk may go through many plants and transport vehicles. In addition, various ingredients and processing aids may be used.
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(The requirements to be a “processing aid” will vary depending on the country of production and/or final sale.) Some of the ingredients that may be added along the way are sugar, milk powder, emulsifiers, flavors, and preservatives. Each ingredient has to be determined to be halal, even if used in small amounts (Al-Mazeedi et al., 2013). Among the more obvious concerns with processing aids are the lubricants and emulsifying agents that often are produced from materials derived from slaughtered animal by-products, an obvious halal concern. Finally, the yogurt is packaged. As innocuous as it may sound, packaging itself can give rise to halal contamination. It may be made from an undesirable source; sometimes it may be coated with a haram product, like a wax from an animal source.

Some progress has been made with the development of the Organization of Islamic Countries (OIC) General Guidelines on Halal Food in 2009. This document needs to be discussed further so as to obtain a version that provides both flexibility and choices with regards to differences in the Fiqh (deep understanding) of the different Muslim school of thoughts while also conforming to national laws and regulations of both Muslim majority and non-Muslim countries. A careful balance is needed to develop a document that strictly adheres to the guidelines obtained from the Qur’an and the Sunnah while allowing for differences on secondary issues (Department of Standards Malaysia, 2009). Halal food standards for a modern food supply chain are being developed in various countries according to the needs and requirements of industry and commerce in those countries. The import and export regulations of certain Muslim countries in the early 1970s focused largely on the requirement for halal slaughter. These halal food standards were mainly developed, regulated, and enforced by various secular governments. Muslim organizations, especially in North America and Europe, developed halal food standards in the early 1980s. These individual standards vary in scope and quality. Each variation in halal standards should be clearly identified so that other certifying agencies and consumers can make an informed choice. These standards should be widely disseminated to the general population as well as to the industry so that there is no ambiguities or confusion (Krishnan et al., 2017).

Currently there are several different halal food standards that are being used by more than 400 certifying agencies currently identified worldwide. Indonesian and Malaysian halal food standards emphasize the certification process and a halal assurance program rather than an emphasis on final food analysis. Their focus is on third-party auditing and verification so there is no doubt about any contamination or haram ingredients (Shafie and Othman, 2006). On the other hand, the United Arab Emirates (UAE) depends on standards that sends products to a testing laboratory to detect any haram materials. The different standards are based on the rulings of the different school of thoughts, some of which follow very strict rules whereas other schools of thought are much more flexible. A decision needs to be made as to whether a more broadly accepted standard should follow the strictest standards, which would allow everyone to use the products but would possibly eliminate products that others consider halal, or whether the standard should provide for multiple standards with guidance on how to clearly identify such products. The structuring of such standards can be guided by one of the generally international standards for good practices such as the family of ISO (International Standards Organization) practices.
HOW TO STRENGTHEN THE HALAL FOOD MODEL

The need to establish a widely accepted halal standard is currently challenging the halal food industry. The definition of halal, while generally agreed upon by Muslims, display significant differences when it comes to their application in the industry. Due to differing halal standards not only between countries but also within each country’s certifying system, confusion, misunderstanding, and even abuse in the halal audit and certification process have occurred (Omar and Jafaar, 2011). For example, some of the certifying agencies in the U.S. use meat coming from kosher slaughtering and certify the meat products as halal. Some of the halal standards in the U.S. only allow hand slaughtering whereas some accept mechanical slaughtering (e.g., for poultry). At the same time, there is major debate going on in Europe and North America regarding the use of pre-slaughter or post-slaughter interventions in addition to the traditional cut for the halal slaughter (Nakyinsige et al., 2012a). Another example of a controversy in the processed food industry is gelatin. Some of the halal-certifying agencies are okay with pork gelatin based on their beliefs that the chemical structure changes during processing of bones into gelatin and the finished product sufficiently changed its chemical and physical nature. Whereas some of the agencies allows beef gelatin in food products based on their beliefs that it was slaughtered by Ahle-Kitab (People of the Book, the ones who have received the Scripture). Whereas some reputable and very strict certifying agencies will only allow gelatin, which is made from hand slaughtered animal bones. Therefore, different halal certifying bodies follow different Islamic rulings regarding issues such as gelatin, food flavorings, animal enzymes, phosphates, mechanical slaughter, stunning of animals, and the usage of a thoracic stick after the dhabiha slaughter. (The thoracic stick is a second cut that increases the speed of blood loss and decreases the time to unconsciousness.) This sometimes creates confusion for producers who may not know which authority to use to get their product certified for their target market. While the industry believes that a global halal standard would be ideal, depending on those standards, current products might no longer be possible or the cost of halal production may be significantly increased, which may not be desirable by the industry or the end user. To develop the most comprehensive set of standards will require a closer look at all the steps in getting halal products from farm to fork.

AT THE FARM

The halal supply chain is vital in ensuring that the final product is halal. This starts at the farm. Therefore, halal auditing should begin on the farm. At present, not much attention is paid by the halal food certifiers to the treatment of animals before the pre-slaughter stage, including what the animal is being fed (Nakyinsige et al., 2012b). The halal auditing should begin with the determination that the animals for halal use have been raised in such a way that they are fit for consumption, in terms of animal welfare and halal food regulations, for example, that the feed was pure (Hambrecht et al., 2004). If the animals are a result of any DNA manipulation or other artificial manipulations, this information should be noted and the legitimacy of the process determined by the Muslim scholars. The addition of the ethical
dimensions of starting at the farm will add value to the end product (Kurien, 2002; Papazyan and Surai, 2007).

Similarly, other raw materials should also be audited and their growing practices be analyzed to ensure their compatibility with the general Islamic guidelines on their consumption. Some questions to be considered during the audit are:

**Plants**

1. Are the raw materials sourced from plants grown using organic farming practices or any other special agricultural method?
2. Details should be obtained if the plants have been genetically modified. Have any foreign genes been introduced into these plants? (For example, has a fish gene been added into tomatoes to fight frost?) Do these foreign genes come from halal sources?

**Animals**

1. Do the animals come from a category fit for Muslim consumption?
2. Have any foreign genes been introduced into these animals?
3. Have the animals been treated humanely? (This needs to be defined from an Islamic perspective consistent with modern animal welfare science.)

**At the Processing Stage**

At the processing stage, the materials, especially those from animals or birds need to be monitored carefully as there is always a risk of contamination if they are processed in facilities where non-halal products or animals are processed. The multi-use of processing lines for halal and non-halal food processing must follow the standards for proper sanitization and monitoring with scientifically validated procedures, ensuring a zero level of cross-contamination between halal and non-halal food products (Ab Talib and Johan, 2012).

**At Slaughtering Facilities**

Most of the regulations for halal foods are related to foods derived from animals and include the species, method of slaughtering, and post-slaughter procedures. The modern methods of mechanical slaughter that have gradually been substituted for the traditional manual methods have raised new issues regarding their conformity to halal regulations. The application of new tools and technologies need to be thoroughly understood and innovative procedures need to be scientifically validated to show that they conform to Islamic dietary laws (Al-Qaradawi, 1994). Pre-slaughter interventions (stunning) are one of the most controversial issues in the modern halal food supply chain, and there are arguments in favor and against this procedure (Apple et al., 2005; Hambrecht et al., 2004; Kannan et al., 2003; Ljungberg et al., 2007; Schaefer et al., 2001). Some of the other key points that need to be kept in mind are:
1. Whether only halal animals are slaughtered at the facility. If not what are the provisions/procedures for sanitizing the plant and avoiding cross-contamination?
2. Whether the animals are transported humanely/safely from the farm to the slaughtering facility.
3. What are the provisions for removing dead animals?
4. Whether a facility has governmental inspectors on-site monitoring the health and safety of the animals and the meat. The halal audit report should incorporate the findings of the governmental inspectors.
5. Whether the slaughtering practices adhere to the slaughtering requirements of the halal certifying body. What mechanisms are in place to assure compliance? How is noncompliance dealt with? How is any noncompliance conveyed to the consumers?
6. How are the slaughtering requirements of the halal certifying body conveyed to users further along in the food supply chain?

**At Production/Processing Facilities**

1. Are the halal compliance certificates from the farm and the slaughtering facility being properly monitored, including checking the validity of the certificate/markings at the time of receiving?
2. What mechanisms are in place to ensure that there is no contamination during transportation, such as the halal sanitization of transport vehicles prior to use?
3. What are the pre-processing preparatory cleaning systems in place at the processing facility? How is the plant being sanitized for halal product processing?
4. If the product is processed at more than one facility, what halal compliance mechanisms are in place to assure that all halal marked products are coming only from halal certified facilities?

**Post-Production Mechanisms**

Once the products are processed, the important thing is that they be labeled properly. The label should reflect not only its halal authenticity but also the halal standard used by the certifier. Food labeling and packaging are crucial stages in the halal food supply chain. Islamic norms require honest trading of food products and proper labeling helps to implement these norms.

The halal logo should be tamper-proof and embedded with the latest technologies in labeling (Regenstein and Chaudry, 2002; Soong, 2007). One developing area is the use of scannable logos (using QR code) on smartphones. The smartphone should be able to read the logo and verify its authenticity immediately. At the processing facilities, the same smart code technology could be used for tracing the journey of the materials and products to assure compliance with the required halal certification standards throughout the supply chain.

This information should also be stored in the Digital Halal Database. While this list can, and should, be as expansive as possible, it is important to note that there are several limitations (Yahaya et al., 2011).
Due to trade secrets and privacy issues, it can only include information that can be disclosed to the public. While the industry can share this information with the halal certifier, it may be reluctant to disclose some of it publicly. The question as to how much information must be disclosed and how much can be disclosed needs to be carefully addressed by those developing the Digital Halal Database.

Most certifiers are still using handwritten audit forms, which take a lot of the auditor's time to fill out properly. They can and should be digitized so that they can easily be used with an iPad or other tablet product and the information transferred electronically to the appropriate long-term databases, namely, those within the certifying agency.

EDUCATION
A key ingredient in the effort to strengthen halal food compliance is education of the businesses, consumers, and governments involved in the halal food supply chain. A well-developed halal model, with room for variations, will benefit the stakeholders as follows (Hasnah, 2011):

BUSINESS
1. Provide financial incentives including the opening of new markets.
2. Provide acceptance and satisfaction for consumers.
3. Add value to the products while strengthening food safety.
4. Increase consumer confidence in the industry. At present, there is a lot of suspicion among consumers. Implementing the above will reverse the trend.

CONSUMERS
1. Confidence in their purchases.
2. Satisfaction and trust of products, certifying agencies, and businesses.

GOVERNMENTS
1. Governments, especially in the non-Muslim countries, will have a much clearer idea of the halal standards and will be more willing to use traditional consumer protection regulations to protect Muslim and non-Muslim consumers purchasing halal products.
2. At present, they are hearing different voices, which confuse them and makes them reluctant to undertake the development of regulations that would protect the halal consumer.

One of the main reasons why the halal industry cannot grow faster, despite rising demands for halal products worldwide, is because there is no consensus on standards. Hopefully, a more widely accepted and publicly available standard will increase confidence in halal and lead to further expansion of the halal market.
REFERENCES


