

Factors that influence the implementation of Halal certification by Dutch meat companies



MSc Thesis

Student: Christella Lydia Uwineza

Registration number: 950515849010

MSc Food Quality Management

Supervisors: Ralf Hartemink & Geoffrey Hagelaar

Course code: FQD-80436

Table of Contents

LIST OF FIGURES	iv
LIST OF TABLES.....	iv
LIST OF ABBREVIATION.....	iv
ABSTRACT	v
1. Introduction.....	1
1.1 Background of the study	1
1.1.1 Halal food and its certification concern.....	1
1.1.2 Effect of the increase of Muslim population in the Netherlands on Halal food certificate	2
1.1.3 Halal certification	2
1.2 Demarcation	3
1.2.1 Raw meat products.....	3
1.2.2 Halal Critical Control Points (HCCPs).....	3
1.2.3 The market of Halal meat in the Netherlands	5
1.3 Research aim	5
1.3.1 General research question	5
1.3.2 Specific questions	5
1.4 Research approach.....	6
1.4.1 Literature review	6
1.4.2 Expert interview	6
Chap II. Literature analysis	7
2.1 Methodology.....	7
2.2 Technological factors influencing meat companies on the implementation of Halal certification ..	8
2.2.1 Proper animal handling and religious slaughter.....	8
2.2.2 Presence of effective cleaning to avoid cross-contamination.....	11
2.2.3 Proper equipment and separation of storage rooms for Halal meat and non-Halal meat.....	11
2.3 Managerial factors influencing meat companies on the implementation of Halal certification.....	12
2.3.1 Information capacity and exposure	13
2.3.2 Training and attribute of employees	13
2.3.4 Top management commitment.....	14
2.3.5 Policy and procedures.....	14
2.3.6 Cost of Halal implementation	14
2.4 External factors influencing meat companies on the implementation of Halal certification.....	15
2.4.1 Certification body	15

2.4.2 Religion.....	16
2.4.3 Accreditation body and government intervention	16
2.4.4 Halal raw material supply	16
2.4.5 Halal market and the presence of consumers	16
2.4.6 Strictness and complexity of Halal requirements	17
2.4.7 Industry competition and consumer satisfaction	17
2.5 Conceptual framework	18
Chap III. Expert interviews analysis	20
3.1 Methodology	20
3.2 Selection of experts and search strategy	20
3.3 Interview design.....	20
3.4 Data collection and analysis.....	21
3.5 Expert interview results	22
Chap IV: Results and discussions.....	23
4.1 Results on the technological factors	23
4.1.1 Proper animal handling and religious slaughter.....	23
4.1.2 Presence of effective cleaning to avoid contamination	24
4.1.3 Proper equipment and separation of storage rooms for Halal and non-Halal meat.....	24
4.2 Discussion on the technological factors	28
4.3 Results on the managerial factors.....	29
4.3.1 Top management commitment, training and attribute of employees	29
4.3.2 Information capacity, exposure and policy and procedures	29
4.3.3 Cost of implementation.....	30
4.4 Discussion on the managerial factors	33
4.5 Results on the external factors	33
4.5.1 Certification body	33
4.5.2 Accreditation body and government intervention	33
4.5.3 Halal raw material supply, Halal market and presence of consumers	34
4.5.4 Strict Halal requirements	34
4.5.5 Industry competition and consumer satisfaction	34
4.6 Discussion on the external factors.....	37
4.7 Summary of the empirical study	37
Chap V. Conclusion, limitations and recommendations for further research	40
5.1 Conclusions	40
5.2 Limitations of the study	42
5.3 Recommendations	43

Reference.....	45
Annex I: Search strategies.....	49
Annex II: Critical appraisal	50
Annex III: Email sent to experts.....	53
Annex IV: Interview procedure and a questionnaire	54
Annex V: The transcripts of expert interviews	57

LIST OF FIGURES

Figure 1: The Halal meat chain and Halal critical control points (Van der Spiegel et al., 2012).	4
Figure 2: critical success factors affecting the implementation of Halal food management system (Ahmad et al., 2017).	12
Figure 3: Internal initiatives and external pressures that influence the implementation of Halal food standard adapted from (Ab Talib & Ai Chin, 2018).	15
Figure 4: Factors that influence the implementation of Halal certification.	19
Figure 5: Interview procedure.....	21

LIST OF TABLES

Table 1: Motivations and limitations to implementing Halal food certification (Ab Talib et al., 2015).	13
Table 2: Similarities and differences in the technological factors that influence the implementation of Halal certification among Dutch meat companies.....	25
Table 3: Similarities and differences in the managerial factors that influence the implementation of Halal certification among Dutch meat companies.....	31
Table 4: Similarities and differences in the external factors that influence the implementation of Halal certification among Dutch meat companies	35
Table 5: Summary of differences and similarities among Dutch meat companies on the implementation of Halal certification	38
Table 6: Search terms for answering research questions 1,2 and 3	49
Table 7: Critical appraisal questions and keywords in the literature search strategy	50
Table 8: Questionnaire.....	54

LIST OF ABBREVIATION

HCCPs: Halal Critical Control Points
HCPS: Halal control points

ABSTRACT

The aim of this research was to identify factors that influence the implementation of Halal certification by Dutch meat companies. Systematic literature review and interview method were used. The systematic literature review was used to identify the factors indicated in the literature and develop a conceptual framework on the basis of it. The results of the literature review and the conceptual framework helped to formulate a questionnaire used to gain more insights from experts on the factors that influence the implementation of Halal in practice.

The main findings of this research were that the technological factors (including Halal Critical Control Points) had a higher influence on the implementation of Halal certification compared to managerial and external factors. Throughout the literature analysis and interviews the most important technological factors identified were proper animal handling and religious slaughter and the presence of effective cleaning to avoid contamination. The most essential managerial factors found through literature analysis and interviews were top management commitment, training and attribute of employees, policy and procedures and cost of implementation. The external factors identified through literature analysis were certification body, religion, Halal market and the presence of consumers, Halal raw material supply, industry competition and consumer satisfaction. Whereas from the interviews the major external factors identified were certification body, Halal market and the presence of consumers, industry competition and consumer satisfaction.

Considering both literature and interview results, the main factors found influencing Dutch meat companies on the implementation of Halal certification were technological factors: proper animal handling and religious slaughter and the presence of effective cleaning to avoid contamination. Managerial factors identified were top management commitment, training and attribute of employees, policy and procedures and cost of implementation. External factors found were certification body, Halal market and the presence of consumers, industry competition and consumer satisfaction.

The main recommendations were that further research should investigate Halal meat integrity throughout the whole supply chain (from animal species breeding to consumers) as this study only focused on slaughterhouses. Moreover, further research should identify similarities and differences among Halal requirements set by certification bodies and if these lead to distinctions within companies on the implementation of Halal certification.

1. Introduction

1.1 Background of the study

The Halal food market is one of the largest business as Islam is the fastest-growing religion in the world (Van Waarden & Van Dalen, 2011). The Muslim population was estimated to be around 1/16 of the total population of the Netherlands in 2009 which was one of the reasons the domestic market for Halal products was bigger (Van Waarden & Van Dalen, 2011). In 2013, the Halal food market represented 17.7% of the global expenditure and in 2019 it is estimated to increase to 21.2% (Reuters, 2015). Furthermore, Majid, Abidin, Majid, and Chik (2015) stated that Halal trade is growing as one of the most important and leading markets in the world. Thus, it is clear that most companies are implementing the use of its mark on their products nowadays. However, some of them do not understand the actual concept of Halal, they are implementing it for the sake of gaining confidence from Muslim consumers. Moreover, there is an inadequate understanding of Halal procedures (Majid et al., 2015).

1.1.1 Halal food and its certification concern

The word “Halal” means allowed, accepted or permitted. Thus, the antonym of Halal is “Haram”, that implies unlawful as per the Islamic religious belief as written in the *Holy book of the Quran* (Alharbi, 2015; Haleem & Khan, 2017; Khan & Haleem, 2016; Nakyinsige, Man, & Sazili, 2012). The consumption of Halal-certified products is one of the main responsibilities of Muslims (Khan & Haleem, 2016). They have to obey a set of dietary laws aimed to improve their well-being. In the *Holy book of the Quran*, dietary law stated that all foods are allowed to be consumed as long as they are under normal circumstances (Halal food), except for foods that are clearly quoted as Haram (foods which are forbidden or prohibited) in that book (Khan & Haleem, 2016).

Halal food is a very essential part of the quality attributes for Muslim consumers. For Muslim consumers to choose food, Halal certification and Halal quality labels play an important role (Nakyinsige et al., 2012). The authenticity of Halal products at a point of consumption is a matter of concern due to the global supply chain. According to Khan and Haleem (2016), a lack of a single global Halal standard and differences in its definitions have made its supply chain awareness more complex. Therefore, it is still a challenging work for concerned parties in production, transportation, distribution and storage of Halal products to make sure that the status of the Halal product is not broken across the supply chain (Khan & Haleem, 2016). Furthermore, another big challenge for Halal standards is a wide disparity between different Islamic schools of thought leading to distinctions in the interpretation of viewpoint, hence some countries choose to establish their own national standards (Alharbi, 2015).

Most of the companies implement Halal certification for the competition with their rivals, not for the motivation of the assurance of Halal food authenticity (Ab Talib, Abdul Hamid, & Ai Chin, 2015; Othman, Ahmad, & Zailani, 2009). Food companies lack knowledge of the need to implement Halal certification. It was concluded in the same reports that food companies are less aware of the significance of implementing Halal certification (Ab Talib et al., 2015;

Othman et al., 2009). Therefore, a clear understanding of Halal certification and factors that influence its implementation is needed.

1.1.2 Effect of the increase of Muslim population in the Netherlands on Halal food certificate

Halal food is becoming more available in markets in the Netherlands as the Muslim population is getting larger, so is their demand for Halal food (Alharbi, 2015). However, regulations regarding Halal food certificate are still of concern which may lead to Halal consumers being misled (Alharbi, 2015). Halal food export from the Netherlands to Islamic countries is increasing. However, knowledge of Halal certification standards is still absent within Dutch companies, which limits food companies from exporting their food products to Islamic countries (Alharbi, 2015).

1.1.3 Halal certification

Halal Certificate is an official document offered to the food producer who has respected and implemented Islamic law and requirements in Halal foods production (Alharbi, 2015). Halal standards certificates are used to make Halal production more clear (Van der Spiegel et al., 2012). Moreover, Halal certificates are needed to show consumers and buyers that products are manufactured according to Halal production methods and to help them in selecting products that comply with Halal requirements (Majid et al., 2015; Van der Spiegel et al., 2012). In case of export at the international level, Halal certificate can enhance the marketability of the products, especially in Muslim countries thus increase the company's sales and revenue (Khan & Haleem, 2016). Therefore, to ensure that the food companies have met the requirements in producing Halal foods, the Halal production has to be verified and certified (Van der Spiegel et al., 2012).

Halal Certification organizations are subjected to controlling and auditing food companies in the process of acquiring their Certificates (Alharbi, 2015). Nowadays, authorized Muslim certification organizations have been established in many countries to monitor, inspect and issue Halal certificates to the slaughterhouses and companies on their handling of the animals and Halal products (Lam & Alhashmi, 2008). However, in the Netherlands Halal standards certificates are set by the Halal certifiers based on worldwide Islamic interpretations which allow many differences in their standards (Alharbi, 2015). Thus results in the lack of a trustworthy Halal logo (Bonne & Verbeke, 2008a). (Zulfakar, Anuar, & Ab Talib, 2014) stated that consumers are suspicious about the authenticity of the Halal certificates displayed on products nowadays since the products they consume are sourced from all over the world. Moreover, in the same study in Malaysia, various cases were identified whereby food traders have been caught using a fake certificate which has reduced the trust of the Halal consumers (Zulfakar et al., 2014). Therefore, Halal certification is required in order to maintain Halal quality, fulfil the demand of the enormous Muslim population and ensure trust among all parties involved in the Halal food supply chain (Lam & Alhashmi, 2008). To achieve this, a first step is to understand why companies are hindered in implementing Halal certification in their company and in their supply chain.

1.2 Demarcation

1.2.1 Raw meat products

As mentioned by Bonne and Verbeke (2008a), it is prohibited for Muslims to consume pork, blood, alcohol, meat which has not been slaughtered according to Islamic rules and dead meat. Meat is believed as the most strictly controlled and regulated food products in the Islam religion (Khan & Haleem, 2016). Furthermore, Meat is the food product of all foods in Islam to be most carefully controlled and the Muslim consumers are more interested in knowing the authenticity of this product compared to other Halal products (Van Waarden & Van Dalen, 2011). Similarly, Kabir (2015) stated that meat is one of the commodities which mainly fall under Halal consideration. Thus, Muslims are so specific about Halal meat compared to other food products. Moreover, meat is the most vulnerable towards cross-contamination with other non-Halal products as any form of contact can make it become unacceptable (Kabir, 2015). Thus, to ensure that this product will remain Halal until it reaches its final customers, more measures are needed to focus on this food product. This research will, therefore, emphasize on meat products.

1.2.2 Halal Critical Control Points (HCCPs)

Nakyinsige et al. (2012) reported that Halal meat chain should encompass from farm to fork since at any step it can become unacceptable according to the Muslim religion. Halal includes species, origin, slaughter procedure, production, processing methods, storage and transportation of the meat. Thus, all Halal Critical Control Points in the Halal meat supply chain (fig. 1) should be monitored, validated and audited without contamination (Van der Spiegel et al., 2012). Furthermore, the implementation of HCCP (fig. 1) is one of the prerequisites requirements so that parties involved in the meat chain can declare that meats are Halal (Bonne & Verbeke, 2008a). Dedicated processing, warehousing, transportation and handling of the Halal product until it reaches its destination are important factors in keeping its integrity (Haleem & Khan, 2017). Moreover, Ngah, Zainuddin, and Thurasamy (2015) stated that for the Halal supply chain integrity, Halal-certified companies should not focus only on their production and ingredients, but also ensure that their transportation, storage and handling processes are in compliance with Shariah and meet the requirements of their target Muslim market (fig. 1). Thus, Halal integrity can be maintained if the products are handled and stored in a proper way throughout the supply chain (Ngah et al., 2015).

Halal meat supply chain

Halal Critical Control Points

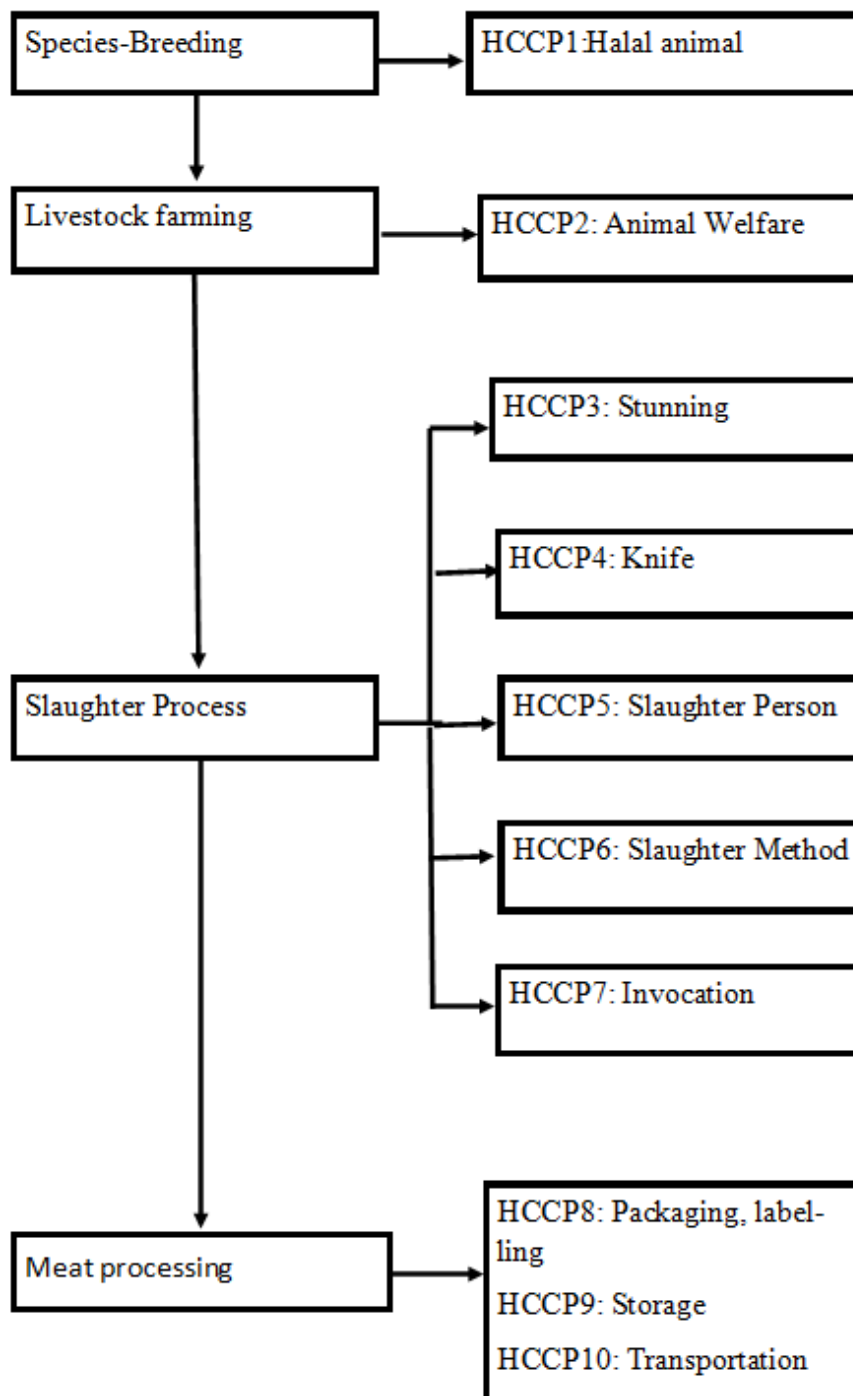


Figure 1: The Halal meat chain and Halal critical control points (Van der Spiegel et al., 2012).

1.2.3 The market of Halal meat in the Netherlands

This study will focus on the Netherlands because of the fast Muslim population growth and increasing demand for Halal food on the market (Alharbi, 2015). The Netherlands had the first facility of Halal warehousing and storage in the world, this allowed most of the Halal food to be supplied there to serve European countries, as well as in the Middle East and Africa (Khan & Haleem, 2016; Van der Spiegel et al., 2012). Unfortunately, there are no clear regulations for Halal food certificates in the Netherlands since this certification is fully conducted and controlled by private Halal certification organizations (Alharbi, 2015). Dahlan and Sani (2017) mentioned that in the Netherlands, there are many Halal certifiers which are varying from local players to foreign representatives. All of these Halal certifiers issue their own Halal logo. Additionally, Van der Spiegel et al. (2012) mentioned that there is a lack of an official Halal quality mark but several logos are used in the Netherlands.

1.3 Research aim

There is a deficiency of the Halal food market and Halal consumer trust due to differences between Halal food certification and unclear regulation of Halal food in the Netherlands (Alharbi, 2015). In order to ensure the purity of Halal products in supermarkets, Muslims in the Netherlands are in need of Halal authentic mark (Kurth & Glasbergen, 2017). Clear information and requirements on Halal implementation are needed for food companies and for Halal food consumers assurance. The aim of this research is to identify factors that influence Dutch meat companies on the implementation of Halal certification in order to assess/analyze their practice of Halal implementation.

1.3.1 General research question

What are the factors that influence Dutch meat companies on Halal certification implementation?

1.3.2 Specific questions

- What are technological factors that influence meat companies on the Halal certification implementation?
- What are managerial factors that influence meat companies on the Halal certification implementation?
- What are external factors that influence meat companies on the Halal certification implementation?
- To what extent the identified factors influence Dutch meat companies on Halal certification implementation?

1.4 Research approach

1.4.1 Literature review

The research approach is developed to answer specific research questions. A semi-structured literature review will facilitate the search of scientific publications that can support the topic. In this study, relevant databases such as WUR Library, Web of Science and Google Scholar will be used for the search strategy (see 2.1). These databases will help in searching for information related to the supply chain of Halal food product and factors that influence companies on the implementation of Halal certification in order to answer the research questions. All information found will be evaluated critically to check if they are relevant for the topic. The information obtained from the literature will help to build a framework which will help to identify factors that influence meat companies on the implementation of Halal certification. Therefore, this framework will help to answer the specific research question 1,2 and 3. The inclusion and exclusion and search strategies of this study can be found in annex I.

1.4.2 Expert interview

In order to approve the literature-based research framework, expert interviews will be conducted. The experts will be chosen from different meat processing companies. In this study, a large company is defined as a company that exports its products abroad or on the international market whereas a small company is defined as the one that serves the local market. 5 large meat companies that export their products abroad or in Muslim countries will be selected for an interview to evaluate factors that influence the implementation of Halal certification. 5 small meat companies that serve the local market will be selected for the interview for the same purpose. The distinction between two types of meat companies in this study will help to get a clear understanding of factors that influences their Halal certification implementation. It is assumed in this study that some companies especially large ones might strictly follow Halal requirements depending on the market they serve, for example, export to Islamic countries. The information from experts will help to answer the 4th research question and absolutely lead to the general research question. For the expert interview, an organized questionnaire will be developed in advance.

Chap II. Literature analysis

In this section, the methodology of how the literature is analysed is described. The first three specific research questions are answered:

- What are technological factors that influence Dutch meat companies on the Halal implementation?
- What are the managerial factors that influence Dutch meat companies on the Halal implementation?
- What are the external factors that influence Dutch meat companies on the Halal implementation?

2.1 Methodology

An in-depth literature analysis was conducted using relevant databases such as WUR Library, Google Scholar and Web of Science for the search strategy. These databases helped on searching to what extent the identified technological, managerial and external factors and indicators can influence meat companies on the Halal implementation. The technological factors can affect the crucial steps in the production of Halal meat. Managerial factors can influence the way people implement Halal procedures. External factors can influence the choice of Dutch meat companies on Halal implementation.

To answer the research question I and II the combination of these search terms were used “ti:(Halal) AND (yr:1990..2019) AND kw:(factor OR technology OR managerial OR certificate)” and for the research question III “kw:(Halal OR external OR certificate) AND kw:(Halal meat).” By the use of the first search term, 242 publications were identified. The first step involved screening the words “cosmetics” from the title as it was mentioned in many publications and was not relevant in this study. With the first screening, the number reduced to 106. The second step was the addition of the keyword “Halal meat” and to be precise that it’s a full-text, peer-reviewed publication in English which ended up by the number of 36. By reviewing titles, abstracts and removing duplicate publications within these 36, finally, 16 were relevant publications which were used.

By the use of the second search term, 531 publications were identified. For the identification of relevant publications, the same procedure used on the first strategy was performed. The words “Kosher and antibiotics” were removed from the title and keywords “factors” was added. With this step, the number reduced to 60 and by reviewing them 7 turns to be relevant ones. The final search term used can be found in annex I (Table 6). Furthermore, in order to answer the first three questions and to analyze different kinds of literature, the critical appraisal questions were also prepared to find in annex II (Table 7). The critical appraisal questions were made for factors which can influence the implementation of Halal certification and this also helped in gaining more relevant publications.

2.2 Technological factors influencing meat companies on the implementation of Halal certification

Luning and Marcelis (2009) defined technology as a set of processes, equipment, methods and tools used to produce goods. According to the authors, technological activities involve production activities such as; storing and transportation. Furthermore, technological conditions or factors include process conditions (a type of process), equipment (design, layout) and infrastructure as applied in production and distribution. Thus, in the current study, factors and activities are classified as technological or managerial based upon on techno-managerial approach (Luning & Marcelis, 2009).

In accordance with Luning and Marcelis (2009), technological activities can be carried out by the use of machines, equipment and tools alone or by combining with people. In the present study, in case the slaughter process is performed using a machine and invocation practiced by the use of a record, there are classified under the technological factors. Yet, these activities can be categorized as managerial factors in case the slaughter process is done by a person and invocation made by a person.

2.2.1 Proper animal handling and religious slaughter

Species breeding

El Sheikha et al. (2017) reported that there are several Halal meat species adulterations and fraudulent production practices with the rapid expansion and globalization of meat markets. Thus, the authenticity of meat is one of the significant factors that improve consumer's confidence in it (El Sheikha et al., 2017).

The animal to be slaughtered should be listed as acceptable species from the *holy book of Quran* (Bonne & Verbeke, 2008b; Nakyinsige et al., 2012). Species that are forbidden such as pork cannot be changed into Halal through Halal slaughter. In the case of cross-contamination between acceptable and forbidden meat, acceptable meat becomes forbidden (Bonne & Verbeke, 2008b; Nakyinsige et al., 2012). Moreover, during breeding, Halal animals may become Haram in case the animals are treated with any product derived from Haram sources (El Sheikha et al., 2017).

Livestock farming

- *Animal welfare*

In Islam, animals should be handled well before, during and after slaughter. Animals should not be stressed or excited before slaughter and they should be nourished, well-rested and having drinking water as well in holding areas (Bonne & Verbeke, 2008b).

Animal welfare is increasingly becoming a primary matter in the process of keeping animals (Adzitey, 2011). Better treatment of animals at slaughter enhances animal welfare, which causes the animals to behave more calmly and reducing their physical injuries as well (Nakyinsige et al., 2013). In contrast, the poor handling conditions of animals before slaughtering will negatively affect the meat quality (Adzitey, 2011). Furthermore, a lack of proper handling awareness and facilities in slaughterhouses leads to aggressive handling of animals by slaughter-man to control animals before slaughter (Aidaros, 2005).

Slaughter process

- ***Stunning***

One of the major factors for the meat to be considered as Halal is that the animal must be alive at the time of slaughter. Some Muslims emphasize that animals must be conscious at the time of slaughter (Shahdan, Regenstein, Shahabuddin, & Rahman, 2016). According to Awal Fuseini, Knowles, Hadley, and Wotton (2016), the stunning method showed the ability to reduce the animal's pain by making it insensible to pain. However, the opposing of this method insist that it contradicts Islamic Shariah law (Islamic scripture) as some animals may die during stunning (Awal Fuseini et al., 2016). Islamic dietary laws promote humane handling before and during slaughter, it does not prohibit stunning yet it forbid blood and dead animals consumption. Stunning can be accepted to lower pain as long as it does not kill the animal and meet the religious prescriptions of humane handling (Bonne & Verbeke, 2008b).

Dahlan and Sani (2017) stated that in the Netherlands, the ritual slaughter was initially protested in parliament. The ritual slaughter without stunning can only be done in several abattoirs that have been appointed by the government. However, some Halal certifiers certify only animals that have been ritually slaughtered without stunning (Dahlan & Sani, 2017).

A study carried out by Grandin and Regenstein (1994) recommended to the Muslim religious authorities who demand slaughter without stunning that they instruct that the knife must be razor-sharp with a straight blade that is at least twice the width of the neck.

If animals are appropriately restrained prior to slaughter, it restricts their movement, thus allowing for the accurate positioning of the stunning device, if used, and ensuring an accurate neck incision during slaughter (A Fuseini, Knowles, Lines, Hadley, & Wotton, 2016).

A pre-slaughter electrical stunning when properly applied can reduce the potential problem of sensibility during and after neck cutting (Anil, 2012). Furthermore, some types of stunning if correctly used can render the animal immediately unconscious which is the actual objective of stunning. yet, some other stunning methods can have adverse effects on carcass and meat quality and cause downgrading (Anil, 2012).

- ***Knife***

Slaughtering with a knife that is too short causes definite struggling and suffering of the animal (Farouk, Pufpaff, & Amir, 2016; Grandin & Regenstein, 1994). Therefore, the knife must be so

sharp that the animal does not feel the pain of the cut especially when no stunning is used. The size of the knife should be proportional to the size of the neck and it should not be sharpened in front of the animal (Bonne & Verbeke, 2008b).

Slaughter with a short knife gouges the cut which can cause the animal to react violently (Aghwan, Bello, Abubakar, Imlan, & Sazili, 2016; Grandin & Regenstein, 1994). Contrary, a slaughter with a knife that is twice the neck doesn't show any signs of flinching in response to resistance which would indicate pain sensitivity (Aghwan et al., 2016). In case of the use of an inadequate sharp knife, specific problems may occur in calves and adult cattle if the cut carotid ends develop clots restricting blood flow following the slaughter (Anil, 2012).

- ***Slaughter method***

The animal must be slaughtered by cutting the front part of the neck, separating the carotids, jugulars, trachea, and esophagus without reaching the bone in the neck. The second requirement is that the animal should preferably be turned towards Makkah. Additionally, no animal should be able to witness the slaughter of another animal (Bonne & Verbeke, 2008b).

A Fuseini et al. (2016) mentioned that for cattle if the slaughter is not done properly, oxygenated blood can still be supplied to the brain through the vertebral arteries, which means that cattle can remain conscious for a significant amount of time during bleed-out. Moreover, precise slaughter methods lower pain and preserve the quality of the end product (Aghwan et al., 2016). In case the animal is not slaughtered well the blood can remain within carcass which affects the level of contamination and thus increases the amount of spoilage (Nakyinsige et al., 2014). Also, a poor cutting and slaughtering technique sometimes causes vigorous struggling (Grandin & Regenstein, 1994). Bonne and Verbeke (2008a) stated that there is a very strong connection between the Islamic slaughter method and health perception. Consumers assume that less bacterial contamination can occur once this slaughter method is applied since it leads to complete bleed-out of the animal, thus resulting in healthier meat (Bonne & Verbeke, 2008a).

- ***Slaughter person***

The slaughter person must be an adult Muslim male or female or someone from “the people of the book,” namely a Jew or a Christian. Two Islamic law schools of thought argue that even if Jews and Christians are deemed to be people of the book, meat slaughtered by them is prohibited unless they mention the name of God while slaughtering. Yet, another school of thought finds the meat slaughtered by Jews or Christians Halal without restriction as it is permitted by the Quran and they stated that the prophet Muhammad used to eat meat prepared by Jews or Christians (Bonne & Verbeke, 2008b). As reported by Nakyinsige et al. (2013), training and positive attitude of slaughter-men towards the basic principles of human slaughter improve animal welfare and proper Halal slaughter.

- ***Invocation***

The name of Allah must be invoked while cutting. The usual formula is “In the name of Allah; Allah is the greatest” (Bismillah, Allahu akbar) (Bonne & Verbeke, 2008b). Al Halaseh and

Sundarakani (2012) mentioned that several studies are still being carried on the saying that states that the mention of God's name causes the reduction of the stress in animals.

2.2.2 Presence of effective cleaning to avoid cross-contamination

Meat processing

- *Storage, transportation and distribution*

Bonne and Verbeke (2008b) emphasized that the distribution and retailing of Halal meat is a crucial issue in order to avoid cross-contamination. Furthermore, (Ab Talib, Rubin, & Zhengyi, 2013) mentioned that at this stage the Halal chain is easily broken. Halal livestock needs to be separated from non-Halal livestock (like pigs) to prevent contamination (Ab Talib et al., 2013; Zailani, Kanapathy, Iranmanesh, & Tieman, 2015). For the transportation of Halal goods, it is important that transport is clean before it is being stuffed or loaded. The transport vehicle/container needs to be dedicated to Halal or ritually cleansed before use especially when they are in direct contact with goods (Tieman & Ghazali, 2014; Tieman, van der Vorst, & Ghazali, 2012). The Halal integrity of products can be suspicious especially for food if it came in direct contact with non-Halal during processing, warehousing, handling and transportation (Tieman, 2011). During transportation, the degree of najis (ritually unclean) is considered as an important factor yet much time was assigned to discuss the different type of najis in transportation (Tieman & Ghazali, 2014).

To prevent contamination, tools that are used to handle the Halal food products should not be used to handle non-Halal food product (Ab Talib et al., 2013). Furthermore, Haleem and Khan (2017) declared that companies need to separate Halal products from other substances that can reduce its integrity during the Halal implementation processes for the assurance of efficient and effective practices of Halal logistics. Nevertheless, Ab Talib et al. (2013) indicated that most of the industries do not practice this since Halal and non-Halal products are still being transported in the same truckload or stored in the same warehouse. It is a very challenging work to maintain transportation activities since there is a lack of collaborative efforts among logistics service providers. One side that practice Halal logistics can stay guaranteed that they handled activities following Shariah law but once the duty goes to another different side, especially if that side is not implementing Halal approach, it will reduce the Halal integrity (Ab Talib et al., 2013).

2.2.3 Proper equipment and separation of storage rooms for Halal meat and non-Halal meat

Ahmad, Rahman, Othman, and Abidin (2017) found that an adequate factory layout, functioning tools and equipment are needed for effective and safe Halal food production. Several Halal executives explained how inappropriate equipment maintenance has affected the safety of their food products thus negatively affected their Halal processing (Ahmad et al.,

2017). The responsibility of companies dealing with Halal products increases as Halal products demands dedicated equipment (Nghah et al., 2015).

In Islamic law, the allowed animals should grow up apart from forbidden animals. Therefore, for a proper Halal slaughter, the set of tools, equipment and utensils must be maintained separately. The whole chain of Halal food production (processing, packaging, storage and transport) is entirely separated and certified from the normal production chain (Kabir, 2015).

2.3 Managerial factors influencing meat companies on the implementation of Halal certification

Ahmad et al. (2017) examined several studies regarding Halal implementation in their article. They identified top management commitment, information and knowledge, adequate support, training and education, supplier management, consumer management, employee attributes, policy and procedures as important factors in the implementation of Halal (fig. 2).

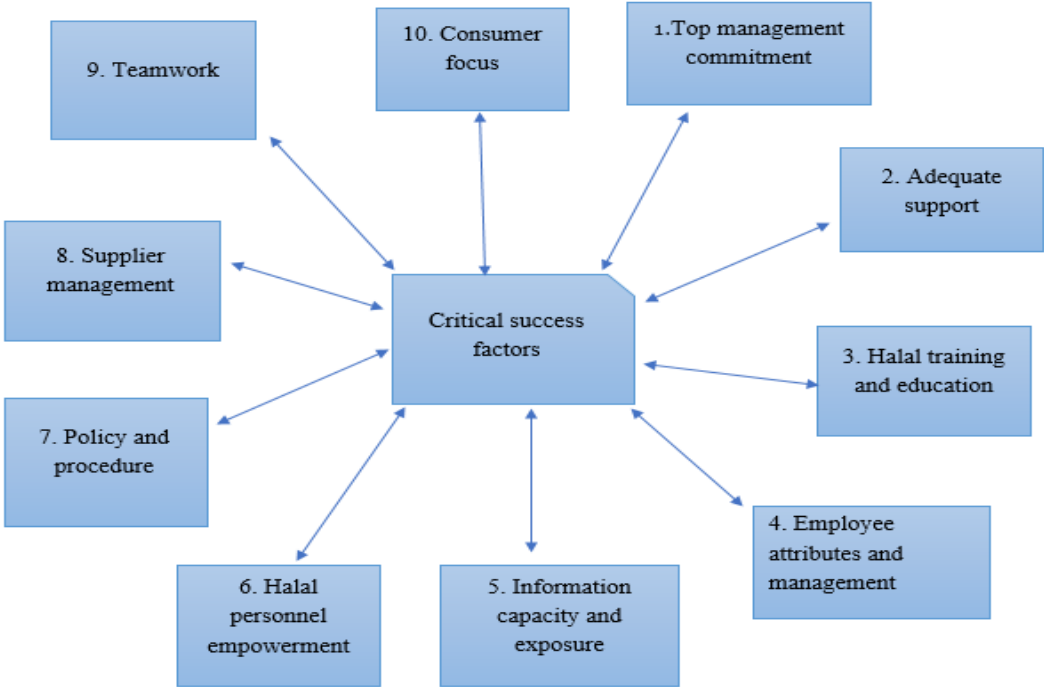


Figure 2: critical success factors affecting the implementation of Halal food management system (Ahmad et al., 2017).

According to Ab Talib et al. (2015), the motivation to implement Halal food certification starts from within an organization (Table 1). The results of this study identified several motivations to implement Halal certification such as; managerial commitment, competitive advantage and firms, market expansion, customer's demand and pressure etc. Yet, several limitations in implementing this standard were also found such as; lack of motivation among employees, high cost of implementation, complicated manuals and processes, lack of knowledge etc (Ab Talib et al., 2015) (see Table 1).

Table 1: Motivations and limitations to implementing Halal food certification (Ab Talib et al., 2015).

Internal factors (major motivations)	External factors (major motivations)
<ul style="list-style-type: none"> - Competitive advantage - Financial drive - Managerial commitment - Image and reputation 	<ul style="list-style-type: none"> - Customer's demand and pressure - Market expansion - International trade - Competing firms
Internal factors (major limitations)	External factors (major limitations)
<ul style="list-style-type: none"> - Cost of implementation - Lack of skills and knowledge - Management commitment issue - Lack of training - Employee attitude 	<ul style="list-style-type: none"> -Lack of market recognition and awareness - Lack of government support - Complicated manuals and processes - Certification is non-mandatory

2.3.1 Information capacity and exposure

Drawing from the study conducted by Ahmad et al. (2017), for Halal implementation, it is very important to have access to information related to Halal requirements and policy. In this study, some industry mentioned the lack of information on the updated Halal requirements as one of the challenges in Halal implementation.

2.3.2 Training and attribute of employees

Training of employees is very essential to enhance Halal animal welfare. For example, slaughter-men must be trained on how to sharpen and look after their knives; animal handlers should be trained on how to move animals calmly (Farouk et al., 2016). Regarding Ab Talib et al. (2015) the improvement of employee performance is one of the driving factors in the pursuit of Halal food certification. The managers must guarantee that their employees know the importance of Halal certification since the workforce plays a crucial role in stimulating Halal certificate implementation.

Inadequacy of employees training on Halal food certification leads to a lack of skills and awareness which was identified as one of the limitations of Halal certificate implementation (Ab Talib et al., 2015). Ahmad et al. (2017) stressed the training and education of employees with the skills and knowledge of Halal as one of the important factors for its effective implementation. The roles of production workers are very essential to the success of Halal food management system as their job directly affect products. For an effective Halal food implementation, employees should maintain positive attributes such as commitment, knowledge and empower to act on Halal and safety-related issues (Ahmad et al., 2017).

2.3.4 Top management commitment

The top management commitment is one of the important factors that could promote or prevent effective Halal management system implementation (Ahmad et al., 2017). Ab Talib et al. (2015) stressed that top management is basic in motivating employees to carry out Halal principles and implementing Halal certification. Similarly, (Ngah et al., 2015) emphasized that top management assistance support plays an important role in the adoption process since they are the ones who should decide what is best for their organization. For instance, if the employees observed that Halal warehousing activities are good for the organization, but without the top management support of their views, the intention would stay as it is. On the contrary, if the top management observed that they are good for the organization. The adoption of Halal warehousing in their supply chain activity would be implemented with the top management's instruction. The findings of this study showed that higher awareness will lead to a higher adoption decision on Halal implementation (Ngah et al., 2015). As stated by Ab Talib et al. (2015) employee and managerial commitment is part of the major reasons to implement Halal standard. Thus, companies need to ensure that Halal executives are properly trained on Halal program implementation in order to verify that they are skilled and well prepared in handling their tasks (Ahmad et al., 2017).

2.3.5 Policy and procedures

According to (Ahmad et al., 2017), policies and procedures are among the factors that may influence the effective management of Halal food. In addition, companies need to design regulations that are related to Halal such as the prohibition of unlawful food and drink in food premises. This author mentioned that a failure to determine Halal rules and regulations could affect the Halal status of the company (Ahmad et al., 2017).

2.3.6 Cost of Halal implementation

Firstly, management and the workforce of firms demand accurate knowledge on Halal standard. Additionally, sometimes the production line of Halal meat needs to be separated from the production line of non-Halal meat. Thus, addressing these points increases production cost (Kabir, 2015). A study carried out by Karaman, Cobanoglu, Tunalioglu, and Ova (2012) identified the cost of implementation as one of the major barriers in the standard implementation. Companies were more likely to become Halal-certified if the cost of

implementing certification was favourable. However, meeting Halal requirements had additional costs for food companies (Ab Talib et al., 2015).

Ab Talib et al. (2015) supposed that a high cost of implementation, financial constraints, and deficiency of government support prevent food companies from implementing Halal food certification. A lack of financial resources is an impediment in implementing Halal food certification especially for small-sized food companies (Ab Talib et al., 2015).

2.4 External factors influencing meat companies on the implementation of Halal certification

Ab Talib and Ai Chin (2018) outlined industry competition, consumer pressure as some external factors that pressure food companies to implement Halal food system (fig. 3). Also, these authors identified organization commitment and market function as an internal initiative in the implementation of Halal standards (fig. 3). Furthermore, consumer concern, government initiatives, and supplier readiness were identified as factors that influence small and medium companies to implement Halal supply chain management (Muhamed, Ab Rahman, & Zain, 2019).

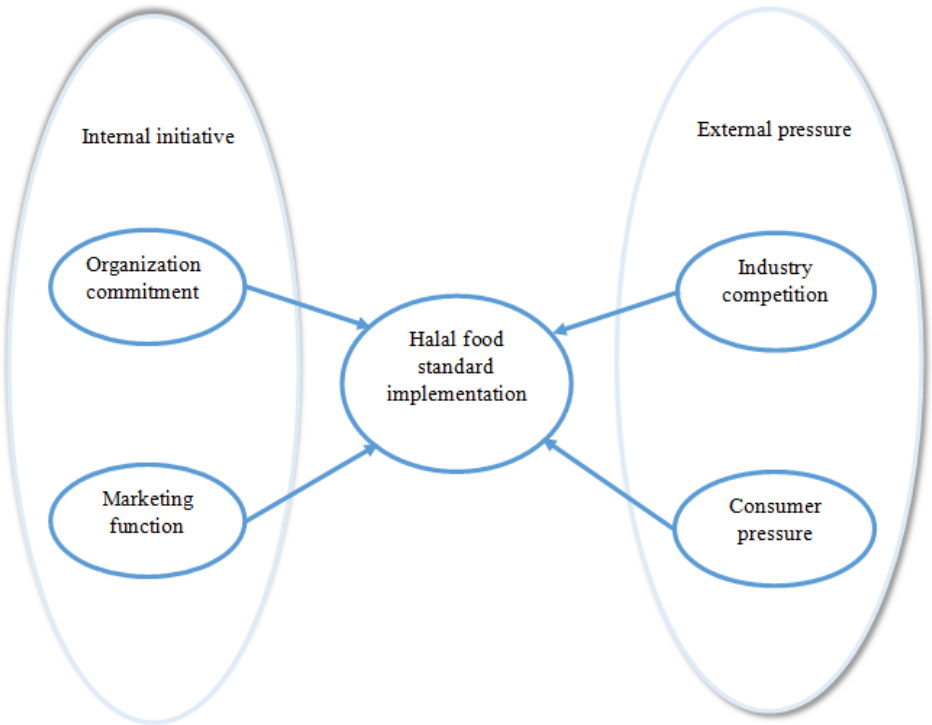


Figure 3: Internal initiatives and external pressures that influence the implementation of Halal food standard adapted from (Ab Talib & Ai Chin, 2018).

2.4.1 Certification body

The increase of international market of Halal products has created a need for Halal-certifying bodies to ensure consumers’ rights in getting good Halal products and services. Several Halal certification bodies have arisen around the world to meet the demand and needs of the manufacturers who are questing to serve the Halal market locally and internationally (Latif, Mohamed, Sharifuddin, Abdullah, & Ismail, 2014). In the last decade, the expansion of

institutions and countries that grant Halal certification has grown significantly with the final result of confusing consumers and companies (E. Rios, E. Riquelme, & Abdelaziz, 2014).

E. Rios et al. (2014) stated that any person or organization can issue Halal certificates but its permissibility depends on the country of import or the Muslim community served. Sometimes companies are restricted to implement Halal food certification due to the complicated certification manuals and accreditation processes which mostly arise from ineffective execution within certification regulatory bodies (Zailani et al., 2015).

2.4.2 Religion

Religion plays one of the most crucial roles in food choice in many societies. Religion itself influences food consumption according to the extent to which individuals follow the teachings of their religion. For example, pork and not ritually slaughtered meat in Islam and Judaism are prohibited (Bonne & Verbeke, 2008b). In order to comply with specific religious requirements, meat chain needs to be adapted to Islamic conditions during Halal meat production and retailing in order to translate the desired process attribute into a set of principles, standards, and specifications of Halal meat production (Bonne & Verbeke, 2008b).

2.4.3 Accreditation body and government intervention

Escanciano and Leticia Santos-Vijande (2014) mentioned that governmental factor is an important motivator to implement food standards. Governmental regulation positively affects Halal food standard implementation (Zailani et al., 2015). However, in some countries companies are still willing to implement Halal standard as a way of legitimizing their operation even when it is not mandatory (Ab Talib & Ai Chin, 2018).

In Malaysia, the government support is vital due to the high competitiveness among Halal food producers of other countries, such as Indonesia. Thus, government support is likely to encourage Halal manufacturers to stick to Halal requirements. The government can increase the adoption of Halal implementation among Halal food companies by helping them obtain the Halal logo and certification, provide financial assistance and infrastructure (Zailani et al., 2015).

2.4.4 Halal raw material supply

Regarding Ahmad et al. (2017), the effective Halal food management system relies basically on the supplier as the raw materials play important roles in defining whether the end product is acceptable or not (according to Islamic law). For the proper Halal food management system, companies should not rely on dependable suppliers but on those who are well versed in Halal certification's requirements.

2.4.5 Halal market and the presence of consumers

The Halal food market is big business as Islam is the fastest-growing religion on earth. Most of the Muslim consumer spend a lot on Halal meat (Zailani et al., 2015). The domestic market for Halal products in the Netherlands seemed to be quite big in 2011 as the Muslim population at that time estimated around 1/16 of the total population (Van Waarden & Van Dalen, 2011).

Halal market demand refers to the needs and wants of customers that have eventually created the local and global customer and community pressure for Halal products (Tieman, 2011). Thus to maintain customer trust, Halal food firms have to ensure that they follow the requirements of standards in producing Halal food products (Zailani et al., 2015).

Consumer demand influence food companies to implement food standards (Ab Talib & Ai Chin, 2018) (see fig. 3). The urgent needs to continuously expect consumer demand, maintain consumer confidence and reduce their complaints pushed food companies to actively implement food standards. Furthermore, consumers played an important role in driving standards adoption (Fernando, Ng, & Yusoff, 2014). The more consumers become aware of Halal products the more they increase their needs and demand leading to customer pressuring the Halal industry. Therefore, companies must ensure that they follow the requirements of Halal in order to obtain consumer trust (Zailani et al., 2015). Ab Talib et al. (2015) declared that the pressure and demand from the customers encourage food companies towards the implementation of Halal food certification.

2.4.6 Strictness and complexity of Halal requirements

Halal food market emerges as a potential opportunity for meat producers. However, the strict requirement of the Halal standard makes the entry to this market sometimes challenging (Kabir, 2015). Halal meat chain should start from farm to table. This means from the origin of the animal, feeding, slaughtering, meat processing, packaging and distribution. (Haleem & Khan, 2017; Nakyinsige et al., 2012). Thus, most of the meat producers find it complicated to enter the Halal market (Kabir, 2015). In accordance with Ab Talib et al. (2013), regulations and requirements for applying the Halal logo are too difficult to be adopted by some Halal companies. With respect to Ngah et al. (2015), most of the companies were still not adopting Halal warehouse services for their products due to their unawareness of who the providers are since they actually did not know where to get the services. Most of the companies reported that they would be very eager to adopt Halal facility given that the process was not complicated (Ngah et al., 2015).

2.4.7 Industry competition and consumer satisfaction

In Malaysia, many food companies produce Halal products to take advantage of the market as most the consumers are Muslim in this country (Ab Talib et al., 2015). Therefore, consumers will not easily place orders for Halal food unless these companies prove a certain level of performance. Ab Talib et al. (2015) highlighted that certain companies are motivated to implement Halal food certification as a way of competing with their rival companies.

The competitive food industry is a pivotal factor in determining standards adoption among food companies (Escanciano & Leticia Santos-Vijande, 2014). Also, the pressure to improve performance related to rival companies enhance the need to implement food standards (Ab Talib & Ai Chin, 2018) (see fig. 3).

2.5 Conceptual framework

In this study, the conceptual framework was developed in order to visualize factors that influence the implementation of Halal certification (fig. 4). In the creation of the framework, the factors used were identified through the systematic literature review. These factors were split into technological, managerial and external factors.

At the right side of figure 4 in the orange box, you can find the outcome which is the implementation of Halal certification. The outcome can be achieved when the HCCPs are maintained as indicated earlier. The HCCPs displayed in the middle of the figure in a white box can be influenced by technological, managerial and external factors. The technological factors presented in a blue box in the center can directly be influenced by managerial factors and indirectly influenced by external factors. Managerial factors shown on the top of the figure in a blue box are directly affected by the external factors. As mentioned earlier the external factors displayed in the white box down influences all HCCPs and factors.

Proper animal handling and religious slaughter affect the Halal animal welfare and slaughter process. Proper equipment and separation of storage rooms for Halal and non-Halal meat and presence of effective cleaning to avoid contamination influence all steps involved in Halal meat production from Halal animal welfare, its slaughter process, till its transportation. All managerial factors namely; information capacity and exposure, top management commitment, training and attribute of employees, policy and procedures and cost of Halal implementation influence all HCCPs and as well as all technological factors. The external factors namely; certification bodies, accreditation bodies and governmental intervention, religion, Halal market and the presence of consumers, Halal raw material supply, strict Halal requirements and industry competition and consumer satisfaction influence all HCCPs, all technological and managerial factors.

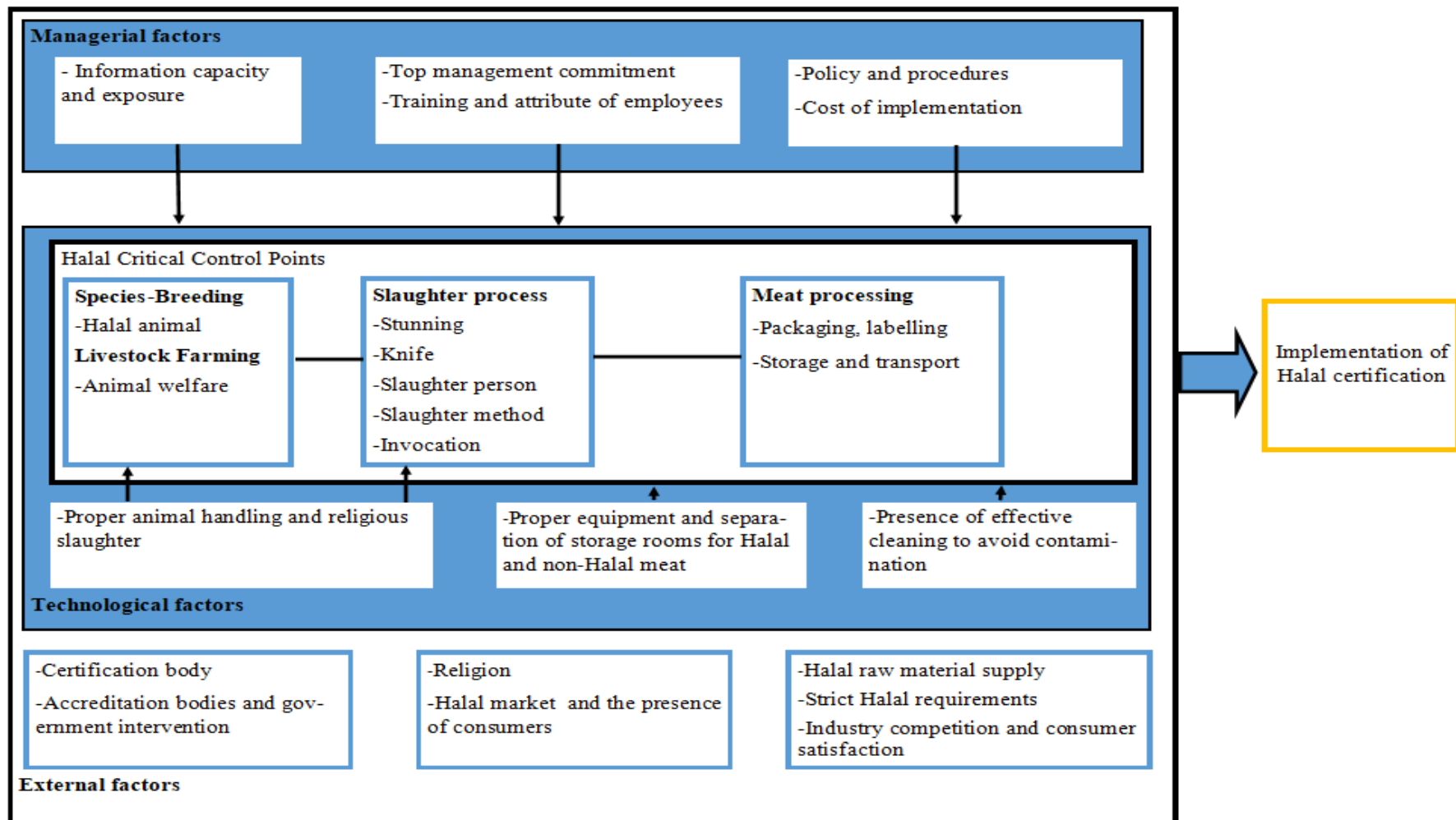


Figure 4: Factors that influence the implementation of Halal certification.

Chap III. Expert interviews analysis

In this section, the methodology of interviews is described. The 4th research question “to what extent the identified factors influence Dutch meat companies on Halal certification implementation?” is answered.

3.1 Methodology

The interviews were conducted from the 20th of January 2020. These interviews helped to understand and to identify the factors that influence companies to implement Halal certification in practice.

3.2 Selection of experts and search strategy

For the purposes of conducting expert interviews and collecting relevant information, it has been decided to look for people with experience, both practical and theoretical, in companies and slaughterhouses that produce Halal meat. In order to approach them several ways on the social network were used such as LinkedIn search and visiting website. In order to present me to the experts and to make them aware of the research topic, a brief explanation was provided. The introduction email used to approach the experts is presented in annex III.

The website of Netherlands food and consumer product safety authority was used to identify a list of slaughterhouses. Approximately 222 slaughterhouses were found. For identifying and selecting Halal certified slaughterhouses, their websites were visited. 27 slaughterhouses that are Halal certified were found. All these slaughterhouses were addressed and contacted for an interview via emails and phone calls. Out of 27 requests that were sent, 15 were unanswered, 9 declined because they were not interested and only 3 accepted to participate in this research.

3.3 Interview design

An interview guide with a written list of questions was prepared in advance (see annex IV). The questionnaire was revised by asking peers and people without Halal background knowledge in order to check if they get the meaning or whether they find questions understandable. The subjects to be discussed was first introduced. Secondly, some practical issues were discussed such as asking permission for recording, quoting and confirming the anonymous and confidentiality of the research.

In the beginning, a general question is asked to the experts regarding their technical knowledge of Halal meat production. Then the interview was divided into three parts; on technological, managerial and on the external factors following the conceptual framework. It consisted of 30 questions with some open ones in order to gain broad answers and validate the framework and some closed questions for getting quick and specific answers.

The first question was focused on the major steps involved in the production of Halal meat. The purpose of this first question was to confirm the steps identified in the literature and to get well

the expert into the topic. The expert was asked to answer different types of questions developed following the conceptual framework. For example, an open question on technological factors, “How do you maintain the authenticity of Halal meat during production/slaughtering?” was asked in order to confirm the practice of some Halal requirements. Furthermore, probing questions (yes/no questions) were formulated to confirm specific points. An example of such a question is “Do you separate tools used to handle Halal and non-Halal meat?” which was asked in order to check specific conditions. The role of employees to the success of Halal food management system was stressed as important in the literature as their job immediately affect the product (Ahmad et al., 2017). For this reason, a question on managerial factors “How do you make sure that employees are well aware of Halal implementation procedures?” was asked to check if employees are kept aware of these requirements. Also, a question on external factors like “Which requirements are challenging your company to implement Halal certification? ” is asked to the expert in order to obtain a general view of the factor investigated and to validate the literature findings. On the last part of the interview, the question “What is the most reason why your company implement Halal certification?” is asked in order to measure or confirm the importance of factors. The complete set of questions developed for the expert interview are reported in annex IV (Table 8).

3.4 Data collection and analysis

Those who accepted to be interviewed, the interview was performed via phone calls or live meeting and took around 45 minutes. Figure 5 illustrates the process of data collection, which consists of four stages. The four stages were interview questions design, identifying the experts, contact the experts, and conducting the interviews.

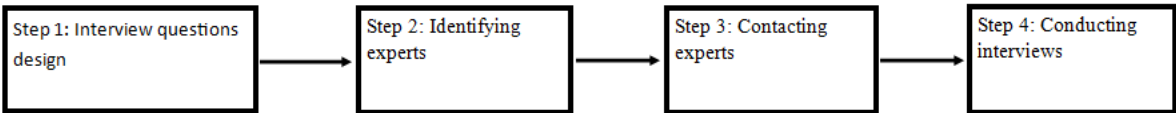


Figure 5: Interview procedure

The expert interview was recorded using a voice recorder and transcribed to a text. The names of experts and their companies are not included in this research for privacy and confidentiality reasons. The analysis of the raw data (transcribed interview) was firstly carried out by processing the data according to the different technological, managerial and external factors indicated earlier. The transcribed interviews (see annex V) were critically reviewed and this helped to identify similarities and differences among companies (Table 2,3 and 4) on the practice of Halal implementation. The processed information will be further processed into reported data and presented in the next sections.

3.5 Expert interview results

The interviews were aiming to have an overview of factors that influence Dutch meat companies to implement Halal certification practically. The results of the interviews are outlined per factors in the annex V. Companies are named as company 1 (C1), company 2 (C2) and company 3 (C3).

General description of the companies

All the three companies that were interviewed are the leading slaughterhouses in the Netherlands that export most of their products on an international market. Furthermore, all these companies are 100% Halal as they only have one production line for the slaughter of allowed animals under Islamic law (such as chicken and calves). Company 1 and 3 are bigger slaughterhouses of Halal chicken meat only whereas company 2 is a big slaughterhouse of veal meat. One interview was conducted with the manager operations, one with a quality manager and another one with division manager quality, health and safety and environment. Interview with company 1 was conducted on a phone call. Interviews with company 2 and 3 were performed face to face each with two representatives of the company.

Chap IV: Results and discussions

The major findings from the expert interviews are made in the form of similarities and differences as presented in table 2,3 and 4. The results are organized according to factors, presented in separate subheadings and followed by a brief discussion. In this section, assumptions were made after analysing interview results. These presumptions are made according to answers given by experts on different questions asked according to factors influencing the implementation of Halal certification.

The results from literature helped in the identification of factors that influences companies on the implementation of Halal certification. The results of the interviews showed how the technological, managerial and external factors mostly influence the awareness and practice of Halal certification implementation by Dutch meat companies. Therefore, in this section, both results from literature and interviews were compared.

4.1 Results on the technological factors

4.1.1 Proper animal handling and religious slaughter

Species breeding and livestock farming

Animal welfare

C1&2 are considered to be more aware as they mentioned how they practically work with their suppliers. On the other hand, C3 seemed to know the requirements of a Halal animal feed. Yet, he did not state whether it is practiced in their factory or not. He answered in a general way the requirements of animal feeds according to European law. Apparently, all the respondents do not check the Halal raw material requirements such as; Halal animal feed. One respondent instead of mentioning that they work with a Halal-certified supplier, he stated that they work with a GMP+ certified supplier. Therefore, it is assumed that these companies generally check other food quality and safety programs rather than Halal requirements. One animal welfare requirement that all three companies similarly mentioned is the resting of animals before slaughter.

Slaughter process

Stunning

All these companies practically conduct stunning methods even though the types of the stunning they conduct are different. They all agree that a well-controlled stunning doesn't have a negative effect on the animal. Furthermore, they all mentioned that stunning render animals unconscious but doesn't kill it and that animals should be slaughtered right after stunning. A distinction was observed as C1 clearly stated that they can't use gas stunning because it damages the brain of a chicken. However, C3 argued that gas stunning is easy to use and that it is harmless.

Knife, slaughter method and person

All respondents mentioned exactly that knives should be sharp according to Halal requirements. C1 clearly stated the length of the knife. Therefore, it can be assumed that C1 is more aware of Halal knife requirements or that they strictly implement requirements more than others.

All the three companies are aware of the required Halal slaughter man as they all clearly mentioned that in their companies slaughter men for a Halal slaughter are Muslims who are well trained. In C1 and C3 the slaughter man mentions the name of Allah during slaughtering while in C2 invocation is not practised.

4.1.2 Presence of effective cleaning to avoid contamination

All respondents mentioned that there can't be contamination of meat with non-Halal products since all three slaughterhouses are 100% Halal. Aside from other industrial quality and safety programs, companies did not specify any Halal cleaning programs. This shows that maybe companies are less aware of ritual Halal cleaning guidelines. However, C2 stated that trucks used during the transportation of Halal meat are cleaned and disinfected to maintain the authenticity of that meat. C3 stated the same procedure of trucks clean but they added that even the boxes used to carry animals are cleaned and disinfected. A respondent from C1 was not specific on how they maintain their equipment. He answered in a general way "quality should be maintained." Hence, it can be assumed that C3 is more attentive to the quality of Halal production during transportation.

4.1.3 Proper equipment and separation of storage rooms for Halal and non-Halal meat

All respondents mentioned that there is no need for separating equipment and storage rooms since they all produce 100% Halal product. Obviously, all respondents consider their company 100% Halal simply because they have one production line and they slaughter Halal species. Yet, there are several Halal standard requirements to take into consideration even for Halal production line only.

Table 2: Similarities and differences in the technological factors that influence the implementation of Halal certification among Dutch meat companies.

Factors	Similarities	Differences
Technological factors		
<p>Proper animal handling and religious slaughter</p>	<p>C1. “We have contacts with feed companies. C2. We work with certified farms. Feed always come from GMP+ certified suppliers (a well-controlled source). C3. Birds should be fed of animal feeds which are accepted by European law. Birds should not be fed of other animals or blood.</p> <p>C1. “We keep our animals to be slaughtered for resting (like 2 hours). C2. “We let animals rest well before slaughter (like 1 hour). C3. Birds are always stored in the area and wait before going on the slaughter line (between 30 minutes and a maximum of 3 hours of rest before slaughter).</p> <p>C1. For a stunning method, we use an electronic water bath. C2. All our animals are stunned before slaughter. C3. We use a gas stunning method.</p> <p>C1. Our knives are sharp with the length of 25cm.</p>	<p>C1. Gas stunning damages the brain of the chicken.</p>

	<p>C2. Our knives are special sharp ones (according to Halal slaughter requirements).</p> <p>C3. Our knives are sharp (automatic knives) and hand knives are always sharpened again.</p> <p>C1. All slaughter men are Muslim and before starting the job they are trained. They are always updated and educated about animal welfare (COUNCIL REGULATION (EC) No 1099/2009).</p> <p>-Animals face Makkah during slaughtering.</p> <p>C2. All slaughter men are Muslim and they are trained for the Halal slaughtering methods.</p> <p>-After stunning calves are immediately turned in a Halal position for being cut.</p> <p>C3. A slaughter man is a Muslim who is trained about a Halal slaughtering and position animals should face during slaughtering.</p>	
	<p>C1. Slaughter men mention the name of Allah while slaughtering.</p> <p>C3. The slaughter men makes a prayer (by mentioning the name of Allah) while slaughtering.</p>	<p>C2, No we don't practice invocation. Slaughter men don't mention the name of Allah during slaughtering.</p>
<p>Presence of effective cleaning to avoid contamination</p>	<p>C1. There cannot be any type of contamination with a non-Halal product as all products are 100% Halal.</p> <p>C2. Only calves are slaughtered so all products are 100% Halal.</p>	

C3. Everything in the slaughterhouse is Halal.
Since all birds slaughtered are 100% Halal.

C1. The quality should be maintained

C2. Trucks are cleaned and disinfected before being loaded.

C3. “We have a washing place on the site. Trucks are always cleaned with water, soap and disinfection. Even boxes used to carry birds to the slaughter house are be cleaned and disinfected”.

Proper equipment and separation of storage rooms for Halal and non-Halal meat

C1. There is no need for separating tools since it is a 100% Halal slaughter (only chicken are slaughtered).

C2. No separation of tools needed since it is a 100% Halal slaughter (only calves are slaughtered).

C3. No need for separating tools since it is a 100% Halal slaughter (only chicken are slaughtered).

4.2 Discussion on the technological factors

From interview results, C1&2 mentioned that they keep contact with their supplier which is comparable with what Ahmad et al. (2017) stated that companies should not count on dependable suppliers but on those who are well versed in Halal certification's requirements. All respondents stated that animals should rest well before slaughter yet they all mentioned the different time of rest. Similarly, in literature, several researchers mentioned different times of rest and others only mentioned that animals should rest without specifying a time. According to Bonne and Verbeke (2008b), animals should rest well and have drinking water in holding areas before slaughter.

Awal Fuseini et al. (2016) mentioned that the opposing of stunning method insist that it contradicts Islamic Shariah law (Islamic scripture) as some animals may die during stunning. This was also emphasized by the respondent from C1 who stated that a gas stunning damages the brain of the chicken. However, all respondents depending on the type of a stunning method they use, they argued mentioning that once well-controlled, stunning doesn't have a negative effect on the animal. It was also emphasized by Bonne and Verbeke (2008b) under subchapter 2.2 in the third paragraph. C1 conducts an electronic water bath as a stunning method which they believe to be the best method as it doesn't cause any harm to the animal since it is a reversible method. As stated by Anil (2012), a pre-slaughter electrical stunning when correctly applied can decrease the potential problem of sensibility during and after neck cutting. Furthermore, despite the fact that there is no clear unified view among the Islamic sects, reversible stunning of animals is mostly accepted (Abdullah, Borilova, & Steinhauserova, 2019).

Experts answered that the knives used in their companies are sharp for Halal slaughter. One company specified the length of the knife while others didn't. In the literature results also it was mentioned that knives should be sharp. There were no specified measures of knives to be used during a Halal slaughter mentioned (Bonne & Verbeke, 2008b; Grandin & Regenstein, 1994). All experts stated that their slaughter men are Muslims who are well trained. In the same way, it was mentioned by Bonne and Verbeke (2008b) under subchapter 2.2 paragraph 4. Furthermore, these respondents mentioned that the slaughter men are trained on Halal slaughtering requirements such as the position of the animal should face during the slaughter. This links with the literature, the animal should preferably be turned towards Makkah during slaughtering (Bonne & Verbeke, 2008b).

The name of Allah must be invoked while cutting (Bonne & Verbeke, 2008b; Marzuki, Yunus, Yazid, & Ismail, 2012). Similarly, a slaughter man in C1&C3 mentions the name of Allah during slaughtering. However, in C2 invocation is not practised. The expert in C2 mentioned that it is a lot of work for a slaughter man to mention the name of Allah on every cut as they slaughter a huge number of animals a day. Nevertheless, C2 to mention that invocation is time-consuming should not be a reason as Bonne and Verbeke (2008b) stated that the blessing can

also be only at the beginning of the process and that the use of recordings of blessings is allowed. However, not practising invocation should not be an issue according to Benkheira (2002), from (Bonne & Verbeke, 2008b) who stated that invocation is only a secondary condition and that if the slaughter men forget, the meat does not become Haram. On the contrary, Al Halaseh and Sundarakani (2012) claimed the importance of invocation stating that several studies are still being carried on the saying that states that the mention of God's name causes the reduction of the stress in animals.

All companies did not mention any Halal cleaning program to prevent contamination as they all emphasized to have only one Halal production line. However, Ngah et al. (2015) stated that for the Halal supply chain integrity, Halal-certified companies should not focus only on their production and ingredients, but also ensure that their transportation, storage and handling processes are in compliance with Shariah and meet the requirements of their target Muslim market. Furthermore, contaminated equipment needs to be cleansed ritually according to Islamic Law by using acids, bases, detergents and rinses with hot water for seven times and in some Islamic traditions the cleansing also requires the use of sand and water (Marzuki et al., 2012). Results from the current study showed that companies maintain the quality of trucks used during transportation by cleaning and disinfecting them. Also, it was stated in the literature under subchapter 2.2.2 in the first paragraph by (Tieman & Ghazali, 2014).

Generally, all steps discussed in this section are under Halal critical control points. Lau, Jamaludin, and Soon (2016) developed Halal control points such as; Halal certification, equipment, raw material and transportation and storage for the food manufacturing companies. These HCPs can be applied as a guideline in Halal food industries and can help in determining the possible sources of Haram contamination (Lau et al., 2016). However, companies seem not to clarify and specify Halal control points in their factories. In the similar way, Bonne and Verbeke (2008b) stated that there is a lack of an authority for systematic monitoring and controlling of the Halal control points within the meat chain.

4.3 Results on the managerial factors

4.3.1 Top management commitment, training and attribute of employees

All respondents agreed and acknowledged that the top management commitment influences the implementation of Halal. They all declared the awareness and commitment of top management based on years of experience.

4.3.2 Information capacity, exposure and policy and procedures

All respondents showed active support to their employees. They all emphasized that procedures and training are available for all employees for their awareness. However, C1&3 seem to practically maintain their employees aware of Halal requirements. They clearly showed how they maintain the awareness of the employees by discussing procedures, training and internal auditing. On the contrary, C2 make sure that procedures are printed and posted everywhere in their factory. Therefore, C1&3 seem to practically keep their employees aware of Halal

requirements more than C2. Another similarity within these companies is that all employees are allowed to consume what they want outside the production line.

4.3.3 Cost of implementation

Similarly, C1&C2 mentioned that the implementation of Halal certification increases the cost of their products. C1&3 are both chicken slaughterhouses. Thus, we could expect that if the implementation of Halal certification increases the cost of products in C1 should be the same for C3. On the contrary, C3 stated that this implementation doesn't increase the cost of products. This may be due to the fact that there are some Halal requirements that some companies implement when others don't. For example, C1 stated that the use of many slaughter men increases the cost of their product. The respondent from C1 explained that some consumers prefer hand-cut slaughter and this type requires at least 1-2 slaughter men on one cut which increases the cost. Furthermore, as previously mentioned, C2 based on their perception they stated that practicing invocation increases the cost of products.

Table 3: Similarities and differences in the managerial factors that influence the implementation of Halal certification among Dutch meat companies

Managerial factors		
Top management commitment, training and attribute of employees	<p>C1. Top management agreed for the company to implement Halal.</p> <p>C2. If top management is committed, of course, the company will go for Halal and they can decide if it's to be 100% Halal.</p> <p>C3. When top management is committed, they will emphasize the implementation of Halal certification.</p>	
-Information capacity and exposure - Policy and procedures	<p>C1. "All our employees are aware of Halal because we have been doing this business for a long time".</p> <p>-We have Halal teamwork to discuss procedures and Halal requirements in our HACCP system.</p> <p>C2. "In our slaughterhouse, Halal procedures and requirements are posted everywhere for employees to see always".</p> <p>C3. We provide Halal training to employees in the factory. "We have an internal audit that checks on the flow of people are still implementing Halal requirements".</p>	
	<p>C1. Non-Muslim employees can consume what they want in the restaurant even if it can be Haram.</p>	

	<p>C2. On the workflow are no eating and drinking according to food safety policy. Yet, outside non-Muslim can consumer what they want.</p> <p>C3. Outside the production area employees can consume what they want.</p>	
Cost of implementation	<p>C1. The implementation of Halal increases cost. We slaughter 75% by hand cut and 25% by machine cut. We need many slaughter men for the hand-cut. Thus, it increases the cost.</p> <p>C2. Every standard increase cost.</p>	<p>C3. The implementation of Halal do not increase the cost.</p>

4.4 Discussion on the managerial factors

All respondents emphasized that their top management is committed to Halal implementation. Ab Talib et al. (2015) stressed that top management is basic in motivating employees to carry out Halal principles and implementing Halal certification. Respondents stated that they train and provide procedures to their employees on Halal requirements. This was emphasized in literature where Ahmad et al. (2017) stressed the training and education of employees with the skills and knowledge of Halal as one of the important factors for its effective implementation. All respondents mentioned that employees are allowed to consume what they want outside the production line. In contrast, Ahmad et al. (2017) stated that companies need to design regulations that are related to Halal such as the prohibition of unlawful food and drink in food premises.

C1&2 mentioned that the implementation of Halal certification increases the cost of their products. This might be compared to what (Ngah et al., 2015) stated that the responsibility of companies dealing with Halal products increases as Halal products demands dedicated equipment. Furthermore, according to Ab Talib et al. (2015), meeting Halal requirements had additional costs for food companies. C1&2 are influenced by the presence of consumers on the implementation of Halal certification. Results from literature also showed that consumer demand influence food companies to implement food standards (Ab Talib & Ai Chin, 2018).

4.5 Results on the external factors

4.5.1 Certification body

All three companies check and control the certification bodies even though they check for different requirements. C1&2 are certified by a similar certification body and C3 is certified by a different one. However, differences were identified in the implementation of Halal certification. This may explain the distinctions between requirements set by different certification bodies. Yet, differences were observed in C1&2 that are certified by the same certification body which means that also companies implement the requirements variously. As an example, C1 has specific requirements of Halal slaughter knife (the length) while C2 only stated the sharpness of knives. Furthermore, C1 practice invocation while C2 doesn't. These differences in Halal implementation between companies themselves may be due to diverse interpretation of requirements, cost of implementation, years of experience, consumer pressure etc.

4.5.2 Accreditation body and government intervention

A similarity was observed on factor “ accreditation body and government intervention”, all respondents mentioned that during the selection of a certification body, the accreditation body and intervention of the government doesn't play a role. However, C2 mentioned that in the case of opening a new market, the accreditation body can play a role.

4.5.3 Halal raw material supply, Halal market and presence of consumers

All respondents did not mention any other criteria they use to select a supplier of raw material rather than the cost. It was expected for respondents to point out that maybe they choose a Halal certified supplier or they first check if a supplier complies with Halal requirements. Thus, it can be assumed that the respondents are less aware of supplier responsibilities in terms of meeting Halal requirements or that companies are cost-oriented when selecting a supplier.

A similarity was observed between C1&2 as both companies are pressured by consumers on the implementation of Halal certification. On the contrary, C3 respondent stated that consumers don't influence their company to this implementation.

4.5.4 Strict Halal requirements

C1&C3 showed similarities in the "strict Halal requirements", the respondents from both companies stated that they don't face challenges in the implementation of Halal certification for now. The difference was observed in C2 as the respondent mentioned some challenges they face such as evolvement of Halal standard that is turning into a food management system and unawareness of suppliers on Halal requirements.

4.5.5 Industry competition and consumer satisfaction

Some differences were observed as C1&2 implement Halal certification for competing other slaughterhouses. This may explain that these companies are cost/money-oriented. C2 respondent mentioned another reason to implement Halal certification which is to be able to export products all over the world. Regardless, the differences identified in the implementation of Halal certification, all respondents stated that the most reason why they implement Halal certification is for the satisfaction of consumers. This may indicate that consumers are simply satisfied when a product is branded Halal.

Table 4: Similarities and differences in the external factors that influence the implementation of Halal certification among Dutch meat companies

External factors		
Certification body	<p>C1. “We control what the certification body does”.</p> <p>C2. “We check if the certification body to certify us is approved in countries we export our products”.</p> <p>C3. “We check for a certification body that will certify our Halal products with our requirements (the certification body that certifies the Halal meat that had been gas stunned)”.</p>	
	<p>C1. “We are certified by Halal Quality Control”.</p> <p>C2. “We are certified by Halal Quality Control”.</p> <p>C3. “We are certified by SGS from Germany”.</p>	
Accreditation body and government intervention	<p>C1. “We don’t consider the accreditation body or government when selecting a certification body”.</p> <p>C2. Not so relevant</p> <p>C3. No, only deal with a certification body, don’t consider accreditation body.</p>	C2. The accreditation body plays a role in case there is an opening of a new market.
Halal raw material supply	<p>C1. “To select a supplier we consider the cost”.</p> <p>C2. Criteria to select a supplier is the cost</p>	

	C3. The only criteria to select a supplier is the cost.	
Halal market and presence of consumers	C1. Sometimes consumers pressure influences a company to implement Halal. C2. Consumers pressure influences a company to implement Halal.	C3. Consumers pressure do not influence a company to implement Halal.
Strict Halal requirements	C1. “For now we have no challenges because we are used to this Halal business”. C3. There is no big issue.	C2. The biggest challenge is that Halal standard is turning into food management system i.e. it’s evolving. - Some suppliers thinks that Halal is a complicated thing and some are unaware of what Halal means or Halal impact. --Sometimes supplier don’t want to apply for Halal certificate which breaks the Halal chain and this brings a barrier.
Industry competition and consumer satisfaction	C1. The most important reason to implement Halal is for the integrity and the satisfaction of the consumer. C2. For satisfying Muslim consumers as they are becoming many so is their consumption market. C3. The most important reason to implement Halal is to meet customer requirements and to satisfy them.	C1&2. Another reason of implementing Halal is to compete with other slaughterhouses. - For an extra value of the product C2. Another reason to implement Halal is to be able to export veal all over the world (mostly to Islamic countries). -To not close the market

4.6 Discussion on the external factors

C2 respondent mentioned that they are challenged by Halal standard which is changing into a food management system. This can be compared to what Ab Talib et al. (2013) stated that regulations and requirements for applying the Halal logo are too difficult to be adopted by some Halal companies. C1&2 mentioned that one of the reasons they implement Halal is for the competition with other slaughterhouses. Ab Talib et al. (2015) highlighted that several companies are motivated to implement Halal food certification as a way of competing with their rival companies. Moreover, it was identified that C2 implement Halal to be able to export their products worldwide. Khan and Haleem (2016) found that in the case of export at the international level, Halal certificate can enhance the marketability of the products, especially in Muslim countries thus increase the company's sales and revenue.

4.7 Summary of the empirical study

In this study, the factors were judged or considered as influential on the implementation of Halal when companies consider them during this implementation (Table 5). A factor is considered to be influential when all respondents stressed it as important and practice it or when it is at least practiced by two companies. There are factors that all respondents don't consider or practice in the implementation of Halal yet a company is certified. These types of factors are not considered influential in this study.

From detailed interview insights, there were several similarities that were identified within all companies. All factors are practiced or followed by companies variously according to the distinction between their beliefs, interpretation of Halal requirements and distinction between certification bodies. In the current study, C1&2 as they are certified by one certification body, they have shown similarities compared to C3. Some of the similarities within C1&2 that contradict C3 is that both companies agreed that the implementation of Halal increases the cost of their products. Both companies admitted that the presence of consumers influences their implementation of Halal and they implement Halal for the rival competition. However, C1&2 regardless that they are certified by the same certification body, they also showed some variations. These differences are for example; C1 specifically showed the requirements of a knife they use in a Halal slaughter and they practice invocation while C2 didn't. Moreover, C1 mentioned that they don't face challenges on the implementation of Halal while C2 mentioned several challenges that they are facing. Similarities were observed between C1&3 as they all slaughter chickens. However, there were differences identified on the factors; cost of implementation, Halal market and presence of consumers and industry competition.

As described earlier in the study, differences among companies were identified whether certified by same certification body or not. Furthermore, some Halal requirements were not practiced in some companies yet they were certified and Halal branded on their products. For example, as previously discussed, companies did not mention that they conduct a ritual cleaning of equipment nor select a Halal-certified supplier. Therefore, it can be concluded that a lack of a global Halal standard as found in literature leads to these differences in the implementation

of Halal certification among companies. These variations may allow the use of untrustworthy Halal logos, inconsistency and a chance to breach Halal integrity.

Table 5: Summary of differences and similarities among Dutch meat companies on the implementation of Halal certification

Factors	Influence on the implementation of Halal certification		
	Technological factors		
	C1	C2	C3
Proper animal handling and religious slaughter			
Animal rest before slaughter	✓	✓	✓
Stunning	✓	✓	✓
Sharp knife	✓	✓	✓
Muslim slaughter men	✓	✓	✓
Invocation during slaughter	✓	×	✓
Presence of effective cleaning to avoid contamination	✓	✓	✓
Proper equipment and separation of storage rooms for Halal and non-Halal meat	×	×	×
Managerial factors			
Top management commitment, training and attribute of employees	✓	✓	✓
Information capacity and exposure	✓	✓	✓
Policy and procedures	✓	✓	✓
Cost of implementation	✓	✓	×
External factors			
Certification body	✓	✓	✓

Accreditation bodies and government intervention	×	×	×
Religion	×	×	×
Halal market and the presence of consumers	✓	✓	×
Halal raw material supply	×	×	×
Strict Halal requirements	×	✓	×
Industry competition	✓	✓	×
Consumer satisfaction	✓	✓	✓

(✓) Influential, (×) not influential

Chap V. Conclusion, limitations and recommendations for further research

In this section the overall research question is answered, the conclusions are given and implications for both theory and practice are discussed. Also, recommendations for further research are provided and the limitations of the research are discussed.

5.1 Conclusions

The aim of this research was to identify factors that influence the implementation of Halal certification by Dutch meat companies. In this research, several approaches were used and this helped to identify relevant information. It is, therefore, a strength of this research as many factors were identified. The major findings of this research will be presented in this section. In this study, on the basis of literature analysis, a factor is considered to be most important based on the numerous authors that emphasized it and how relevant they considered it be. Through the interviews, a factor is considered to be most important based on how the experts emphasized the influence of it in the practice of Halal certification implementation.

What are technological factors that influence meat companies on the Halal certification implementation?

Through the literature analysis, the technological factors “proper animal handling and religious slaughter” and “the presence of effective cleaning to avoid cross-contamination” were found as important on the implementation of Halal certification.

Animal welfare influenced the implementation of Halal certification as poor handling of the animal before the slaughter could negatively affect the quality of the meat (Adzitey, 2011). The stunning method was found to be important mostly to reduce the animal’s pain by making it insensitive to pain (Awal Fuseini et al., 2016). The sharp knife used during a Halal slaughter was important in a quick cut which helped the animal to die immediately without struggling and feeling the pain (Farouk et al., 2016; Grandin & Regenstein, 1994). A slaughter method was important as animals need to be slaughtered by cutting the front part of the neck. Furthermore, if the animal is not slaughtered well the blood can remain within the carcass which affects the level of contamination and increase the amount of spoilage (Ab Talib et al., 2013; A Fuseini et al., 2016). A trained Muslim, Christian or Jew slaughter person was important as their positive attitude towards basic principles of human slaughter improve animal welfare and should mention the name of Allah while cutting (Bonne & Verbeke, 2008b). The transport vehicle needs to be dedicated to Halal or ritually cleansed before use (Tieman & Ghazali, 2014; Tieman et al., 2012).

In the same way, from the current research, all respondents emphasized the importance of animal welfare as they clearly mentioned that animals need to rest before slaughter. Knives used in Halal slaughter were sharp for a quick cut and all slaughterhouses conduct a stunning method to lower animals pain. Furthermore, all respondent emphasized that their slaughter men are Muslims and in two companies invocation is practiced. Even if respondents did not state anything related to the ritual cleaning according to Islamic law, they mentioned that trucks used during transport of Halal products in their companies are well cleaned and disinfected.

By comparing literature findings and the results of the current research, there are some alignments. However, there are some differences in some requirements like separation of equipment, storage rooms and on ritual cleaning. Thus, it can be concluded that the most technological factors that influence the implementation of Halal certification are; proper animal handling and religious slaughter and the presence of effective cleaning to avoid cross-contamination (transportation of Halal products).

What are managerial factors that influence meat companies on the Halal certification implementation?

The most essential managerial factors identified in the literature analysis were training and attribute of employees, top management commitment, cost of implementation, and policy and procedures.

Training and attribute of employees were found to be important as their workforce plays a vital role in stimulating a Halal certification implementation and their performance is one of the driving factors in the pursuit of Halal certification. Moreover, training of employees is very essential to enhance Halal animal welfare (Ab Talib et al., 2015; Ahmad et al., 2017). Halal awareness and commitment within top management promote the effectiveness of Halal management system implementation (Ngah et al., 2015). Policy and procedures were found as important since a failure to determine Halal rules and regulations could affect the Halal status of the company (Ahmad et al., 2017). It was identified that meeting Halal requirements had additional costs for food companies (Ab Talib et al., 2015; Kabir, 2015).

Similarly, from the current research, all respondent stated that the commitment of their top management is a major factor that motivates the implementation of Halal. They all mentioned the importance of maintaining the Halal awareness of the employees in their factory. They mentioned that they actively support their employees by providing training on Halal and by displaying Halal requirements and procedures to them. Two companies explained how the implementation of Halal increase the cost of their products.

Considering both literature and the current research results, they were alignments on all these factors. Thus, it can be concluded that the most managerial factors that influence the implementation of Halal certification are training and attribute of employees, top management commitment, cost of implementation, and policy and procedures.

What are external factors that influence meat companies on the Halal certification implementation?

The most crucial external factors identified in the literature analysis were certification body, religion, Halal market and the presence of consumers, industry competition and consumer satisfaction.

Certification body was found as crucial in the implementation of Halal certification, in order to ensure consumer's right on good Halal products and services and also in order to increase the international market of Halal products (Latif et al., 2014). Religion was found as important as it influences food choice and consumption in many societies according to how individuals

follow the teaching of their religions (Bonne & Verbeke, 2008b). Halal market and the presence of consumers was found as important as the pressure of maintaining consumer trust and reduce their complaints pushed companies to actively implement food standards (Ab Talib & Ai Chin, 2018). Industry competition and consumer satisfaction were identified as essential as the pressure to improve performance related to rival companies enhance the need to implement food standards (Ab Talib & Ai Chin, 2018).

In a similar way, the results of this research showed that the certification body was an important factor in the implementation of Halal certification. All respondents showed an important role of choosing a certification body and the importance of implementing the Halal regulations provided. Two companies clarified how the market and presence of consumers stimulate them on the implementation of Halal. Furthermore, the factor industry competition and consumer satisfaction were found as important. It was found that some companies implement this certification for the competition with their rivals but most importantly, all respondents emphasized that they implement it for the satisfaction of consumers.

In comparison of literature analysis and results from this research, there were alignments on all factors except the factor “religion”. Thus, it can be concluded that the most external factors that influence the implementation of Halal certification are certification body, Halal market and the presence of consumers, and industry competition and consumer satisfaction.

5.2 Limitations of the study

For the semi-structured literature review, there was no information or literature found on factors influence the implementation of Halal certification by Dutch meat companies. Since the research was considered as new research and there was insufficient and limited information about it. Therefore, the search had to be expanded to all Halal meat companies since many publications were from Asian/Muslim countries. Another limitation is that this research was restricted to interviewees from a single country and this may as well limited generalizations that may be made to the factors influencing the implementation of Halal certification in other countries.

There was a limited number of companies that showed their interest to participate in this research. The research aimed to get at least 10 interviews from different meat companies/slaughterhouses. Emails and calls were sent. However, some did not reply. This is most probably that the companies were busy in the period the study was carried out or simply that the company doesn't benefit directly from this thesis. Furthermore, the aim of the study was to compare small and big companies but small companies did not respond which is the reason why interviews conducted were in big companies. Only three interviews were conducted in this study. If more respondents were found for the interview the validity of the results would have been higher and the conclusion stronger. Finding experts from different companies could give a good picture of the factors influence the implementation of Halal certification by Dutch meat companies.

5.3 Recommendations

The current research has brought forward several topics and questions that need further research.

This study did not take the whole supply chain into consideration due to the time limitation. Further research should focus on factors that influence the implementation of Halal certification throughout the whole supply chain i.e up to retailers and wholesalers. This can allow a proper follow up of the Halal integrity.

The data gathered in this study is from big Dutch meat companies and it shows several differences. It would be interesting to collect additional data from small companies for comparison in order to check if there are distinctions between two different types of companies. Furthermore, this research investigated factors that influence only Dutch meat companies on the implementation of Halal certification. This resulted in a small sample as there were few meat companies that are Halal certified in the Netherlands. Thus, it would be more interesting to gather more data from other countries and check if there are the same trends globally or if the factors that influence companies differ according to regions.

One of the certification body that certifies the interviewed companies has a statement that says “the rules of Halal standard may vary as not all countries require the same principles per scheme” and “Halal standards vary per region or country”. Therefore, another area that could be investigated and followed is the similarities and differences among Halal requirements set by certification bodies as it was assumed to be one of the reasons why companies showed distinctions in the implementation of this certification. Moreover, it could be interesting to get more insights on reasons why companies certified by same certification body differ in the practice of Halal requirements. It was identified that there are some important requirements that are not practiced by one company but practiced by another and still get certified.

Literature emphasized mostly on how religion affects the choice of the consumer according to their beliefs. There was no information found on how religion may affect company owners in implementing Halal due to their beliefs. In the present study, the top managements of interviewed companies were not Muslims. Therefore, it would be interesting for further researchers to consider companies lead by Muslims and see if they can implement Halal requirements differently as they might be willing to produce what themselves considers Halal according to their religion.

There are still discussions going on about stunning method as some consider animals slaughtered after stunning not Halal because they believe that they may die during this procedure (Awal Fuseini et al., 2016). Also, some certification bodies certify the ritually slaughtered animals only (Dahlan & Sani, 2017). Bonne and Verbeke (2008b) declared that a lot of debates concerned mostly to the suitable stunning methods were still in progress. Similarly, one of the respondents declared that the use of gas stunning (a type of stunning method) damages the brain of the animal. Therefore, it is recommended for future researchers

to get more insights on the appropriate and advisable stunning method and whether or not stunned animals are 100% Halal.

Many publications state Halal requirements for companies that have Halal and non-Halal production lines. Some factors which were identified from the literature were not applicable to the companies interviewed as they all have only Halal production lines. For this reason, some questions which were intended to be asked seem not to be relevant. Thus, future research is strongly advised to identify factors and Halal requirements for the Halal production line only. Lastly, aside from studying factors that influence the implementation of Halal, researchers should examine the authenticity of the Halal standard mark. It was observed that companies claim to be 100% Halal simply because they are Halal certified and branded on their products yet when there are some requirements that they do not meet.

Reference

- Ab Talib, M. S., Abdul Hamid, A. B., & Ai Chin, T. (2015). Motivations and limitations in implementing Halal food certification: a Pareto analysis. *British Food Journal*, 117(11), 2664-2705.
- Ab Talib, M. S., & Ai Chin, T. (2018). Halal food standard implementation: are Malaysian firms proactive or reactive? *British Food Journal*, 120(6), 1330-1343.
- Ab Talib, M. S., Rubin, L., & Zhengyi, V. K. (2013). Qualitative research on critical issues in Halal logistics. *Journal of Emerging Economies and Islamic Research (JEEIR)*, 1(2).
- Abdullah, F. A. A., Borilova, G., & Steinhauserova, I. (2019). Halal criteria versus conventional slaughter technology. *Animals*, 9(8), 530.
- Adzitey, F. (2011). Effect of pre-slaughter animal handling on carcass and meat quality. *International Food Research Journal*, 18(2).
- Aghwan, Z., Bello, A., Abubakar, A., Imlan, J., & Sazili, A. (2016). Efficient Halal bleeding, animal handling, and welfare: A holistic approach for meat quality. *Meat science*, 121, 420-428.
- Ahmad, A. N., Rahman, R. A., Othman, M., & Abidin, U. F. U. Z. (2017). Critical success factors affecting the implementation of Halal food management systems: Perspective of Halal executives, consultants and auditors. *Food control*, 74, 70-78.
- Aidaros, H. (2005). Global perspectives-the Middle East: Egypt. *Revue Scientifique Et Technique-Office International Des Epizooties*, 24(2), 589.
- Al Halaseh, L., & Sundarakani, B. (2012). Study on quality attributes of Halal food supply chain. *International Journal of Logistics Economics and Globalisation*, 4(1-2), 20-34.
- Alharbi, Y. (2015). Halal food certification, regulations, standards, practices, in the Netherlands. *Wageningen University, Netherlands*.
- Anil, M. H. (2012). Effects of slaughter method on carcass and meat characteristics in the meat of cattle and sheep. *United Kingdom (GB)*.
- Bonne, K., & Verbeke, W. (2008a). Muslim consumer trust in Halal meat status and control in Belgium. *Meat science*, 79(1), 113-123.
- Bonne, K., & Verbeke, W. (2008b). Religious values informing Halal meat production and the control and delivery of Halal credence quality. *Agriculture and Human Values*, 25(1), 35-47.

- Dahlan, H. A., & Sani, N. A. (2017). Comparison and Challenges in the Implementation of Halal Food Laws in Malaysia, the Netherlands and United States of America. *Jurnal Undang-undang dan Masyarakat*, 21, 53-62.
- E. Rios, R., E. Riquelme, H., & Abdelaziz, Y. (2014). Do Halal certification country of origin and brand name familiarity matter? *Asia Pacific Journal of Marketing and Logistics*, 26(5), 665-686.
- El Sheikha, A. F., Mokhtar, N. F. K., Amie, C., Lamasudin, D. U., Isa, N. M., & Mustafa, S. (2017). Authentication technologies using DNA-based approaches for meats and Halal meats determination. *Food Biotechnology*, 31(4), 281-315.
- Escanciano, C., & Leticia Santos-Vijande, M. (2014). Implementation of ISO-22000 in Spain: obstacles and key benefits. *British Food Journal*, 116(10), 1581-1599.
- Farouk, M., Pufpaff, K., & Amir, M. (2016). Industrial Halal meat production and animal welfare: A review. *Meat science*, 120, 60-70.
- Fernando, Y., Ng, H. H., & Yusoff, Y. (2014). Activities, motives and external factors influencing food safety management system adoption in Malaysia. *Food control*, 41, 69-75.
- Fuseini, A., Knowles, T., Lines, J., Hadley, P., & Wotton, S. (2016). The stunning and slaughter of cattle within the EU: A review of the current situation with regard to the Halal market. *Animal Welfare*, 25(3), 365-376.
- Fuseini, A., Knowles, T. G., Hadley, P. J., & Wotton, S. B. (2016). Halal stunning and slaughter: Criteria for the assessment of dead animals. *Meat science*, 119, 132-137.
- Grandin, T., & Regenstein, J. M. (1994). Religious slaughter and animal welfare: a discussion for meat scientists. *Meat Focus International*, 3(1), 115-123.
- Haleem, A., & Khan, M. I. (2017). Towards successful adoption of Halal logistics and its implications for the stakeholders. *British Food Journal*, 119(7), 1592-1605.
- Kabir, S. (2015). Growing Halal meat demand: does Australia miss out a potential trade opportunity? *Economic Papers: A journal of applied economics and policy*, 34(1-2), 60-75.
- Karaman, A. D., Cobanoglu, F., Tunalioglu, R., & Ova, G. (2012). Barriers and benefits of the implementation of food safety management systems among the Turkish dairy industry: A case study. *Food control*, 25(2), 732-739.
- Khan, M. I., & Haleem, A. (2016). Understanding Halal and Halal Certification & Accreditation System: A Brief Review. *Saudi Journal of Business and Management Studies*, 1(1), 32-42.

- Kurth, L., & Glasbergen, P. (2017). Serving a heterogeneous Muslim identity? Private governance arrangements of Halal food in the Netherlands. *Agriculture and Human Values*, 34(1), 103-118.
- Lam, Y., & Alhashmi, S. M. (2008). *Simulation of Halal food supply chain with certification system: a multi-agent system approach*. Paper presented at the Pacific Rim International Conference on Multi-Agents.
- Latif, I. A., Mohamed, Z., Sharifuddin, J., Abdullah, A. M., & Ismail, M. M. (2014). A comparative analysis of global Halal certification requirements. *Journal of Food Products Marketing*, 20(sup1), 85-101.
- Lau, A. N., Jamaludin, M. H., & Soon, J. M. (2016). Quality assurance and Halal control points for the food industry. *Nutrition & Food Science*.
- Luning, P. A., & Marcelis, W. J. (2009). *Food quality management: technological and managerial principles and practices*: Wageningen Academic Publishers.
- Majid, M. A. A., Abidin, I. H. Z., Majid, H., & Chik, C. T. (2015). Issues of Halal food implementation in Malaysia. *Journal of Applied Environmental and Biological Sciences*, 5(6), 50-56.
- Marzuki, S. Z. S., Yunus, N. K. M., Yazid, Z. N. A., & Ismail, I. R. (2012). *The Anatomy of Halal Slaughtering: Issues and Challenges*. Paper presented at the Conference Paper, Bukit Gambang Resort Phang, Malaysia, December.
- Muhamed, A. A., Ab Rahman, M. N., & Zain, C. R. C. M. (2019). Drivers for the Willingness of Small and Medium Enterprise in Implementing Halal Supply Chain Management. *International Journal of Engineering & Technology*, 8(1.2), 146-152.
- Nakyinsige, K., Fatimah, A., Aghwan, Z., Zulkifli, I., Goh, Y., & Sazili, A. (2014). Bleeding efficiency and meat oxidative stability and microbiological quality of New Zealand White rabbits subjected to Halal slaughter without stunning and gas stun-killing. *Asian-Australasian journal of animal sciences*, 27(3), 406.
- Nakyinsige, K., Man, Y. B. C., & Sazili, A. Q. (2012). Halal authenticity issues in meat and meat products. *Meat science*, 91(3), 207-214.
- Nakyinsige, K., Man, Y. C., Aghwan, Z. A., Zulkifli, I., Goh, Y., Bakar, F. A., . . . Sazili, A. (2013). Stunning and animal welfare from Islamic and scientific perspectives. *Meat science*, 95(2), 352-361.
- Ngah, A. H., Zainuddin, Y., & Thurasamy, R. (2015). Barriers and enablers in adopting of Halal warehousing. *Journal of Islamic Marketing*, 6(3), 354-376.

- Othman, R., Ahmad, Z. A., & Zailani, S. (2009). The effect of institutional pressures in the Malaysian Halal food industry. *International Business Management*, 3(4), 80-84.
- Reuters, T. (2015). *State of the GLOBAL ISLAMIC ECONOMY* Retrieved from https://www.flandersinvestmentandtrade.com/export/sites/trade/files/news/342150121095027/342150121095027_1.pdf:
- Shahdan, I. A., Regenstein, J., Shahabuddin, A., & Rahman, M. (2016). Developing control points for Halal slaughtering of poultry. *Poultry science*, 95(7), 1680-1692.
- Tieman, M. (2011). The application of Halal in supply chain management: in-depth interviews. *Journal of Islamic Marketing*, 2(2), 186-195.
- Tieman, M., & Ghazali, M. C. (2014). Halal control activities and assurance activities in Halal food logistics. *Procedia-Social and Behavioral Sciences*, 121, 44-57.
- Tieman, M., van der Vorst, J. G., & Ghazali, M. C. (2012). Principles in Halal supply chain management. *Journal of Islamic Marketing*.
- Van der Spiegel, M., Van der Fels-Klerx, H., Sterrenburg, P., Van Ruth, S., Scholtens-Toma, I., & Kok, E. (2012). Halal assurance in food supply chains: Verification of Halal certificates using audits and laboratory analysis. *Trends in Food Science & Technology*, 27(2), 109-119.
- Van Waarden, F., & Van Dalen, R. (2011). Hallmarking Halal. *The market for Halal certificates: Competitive private regulation. Jerusalem Papers in Regulation & Governance Working Paper*(33).
- Zailani, S., Kanapathy, K., Iranmanesh, M., & Tieman, M. (2015). Drivers of Halal orientation strategy among Halal food firms. *British Food Journal*, 117(8), 2143-2160.
- Zulfakar, M. H., Anuar, M. M., & Ab Talib, M. S. (2014). Conceptual framework on Halal food supply chain integrity enhancement. *Procedia-Social and Behavioral Sciences*, 121, 58-67.

Annex I: Search strategies

Formulation of inclusion and exclusion criteria

Inclusion and exclusion criteria were considered in order to identify potential publications that will be relevant in this study.

Inclusion criteria in this study were:

- Articles related to Halal such as Halal food products, Halal supply chain, certification, accreditation etc.
- Articles from journals, official publications, reports and scientific books.
- Articles published from 1990 till to date.
- Articles only published in English.

Exclusion criteria in this study were:

- Articles in foreign languages.
- Articles related to other Halal products rather than foods such as cosmetics, antibiotics, additives, etc.

Development of search strategies

To develop a search strategy, various tools were used such as wildcards symbols which include a question mark (?), hash (#) were used to search for Halal. For example Halal? Halal#. Boolean operators were used and it includes “AND, OR, and NOT”, which was used to search for Halal products, Halal certification. an example of the search was Halal? AND certificate*. Also, truncation was used, which includes (asterisk) for example Halal*.

For answering research questions (1,2 and 3), further examples of search which includes the use of wildcards, Boolean operators and wildcards used were - (Halal* OR factor* OR tech*) ,(Halal* OR factor* OR manag*), (Tech*) AND (Manag* OR Halal meat Product* process*) These are not static search strategies, they were developed during this study.

Table 6: Search terms for answering research questions 1,2 and 3

source	Specific research questions	Research wording	Hints	Relevant
WUR library	What are technological and managerial factors that influence meat companies on the Halal implementation?	ti:(Halal) AND (yr:1990..2019) AND kw:(factor OR technology OR managerial OR certificate) NOT ti:(cosmetics) AND kw:(Halal meat)	36	16
WUR library	What are the external factors that influence meat companies on the Halal implementation?	kw:(Halal OR external OR certificate) AND kw:(Halal meat) AND (yr:1990..2019) NOT ti:(kosher OR antibiotic) AND kw:(factor)	60	7

Annex II: Critical appraisal

Table 7: Critical appraisal questions and keywords in the literature search strategy

Factors	Questions	Key search words
Technological factors		
<p>Animal handling before slaughter</p> <p><i>(1) Species-Breeding</i> <i>(1,A) Halal animal</i></p> <p><i>(2) Livestock Farming</i> <i>(2, A) Animal welfare</i></p>	<p>(2, A) To what extent the improper animal welfare influence meat companies on Halal implementation?</p>	<p>[2, A] (improp* AND animal welfare*) AND (meat*) and (Halal* OR implement*)</p>
<p>The consciousness, health and position of animal at slaughter</p> <p><i>(1) Stunning</i> <i>(2) Knife</i> <i>(3) Slaughter person</i> <i>(4) Slaughter method</i> <i>(5) Invocation</i></p>	<p>(1) How does the use of the stunning method during slaughtering influence the Halal implementation?</p> <p>(2) To what extent the inappropriate criteria of a knife used during slaughtering can have an impact on Halal implementation?</p> <p>(3) How does the slaughter men influence Halal implementation?</p> <p>(4) How does inappropriate slaughter method influence meat companies on Halal implementation?</p> <p>(5) How does the continuous invocation during slaughtering influence meat companies on Halal implementation?</p>	<p>[1,2] (stunning* AND knife AND slaught*) AND (Halal* OR implement*)</p>
<p>Presence of effective cleaning to avoid cross contamination</p> <p><i>(1) Control of raw materials</i> <i>(2) Storage</i> <i>(3) Packaging, labelling</i> <i>Retailing</i> <i>(4) Transport</i> <i>(5) Distribution</i></p>	<p>(1) To what extent the insufficient control of raw materials affects the Halal implementation?</p> <p>(2) How does the improper storage of Halal fresh meat affect Halal implementation?</p> <p>(3) To what extent the inadequate packaging and labelling of fresh Halal meat affect Halal implementation?</p>	<p>(clean* OR contaminat*) AND (Halal* OR implement*)</p> <p>[3,4,5] (pack* AND label*) AND (transport* OR distribut*) AND (Halal* and implement*)</p>

	(4) To what extent does the poor transport condition influence the implementation of Halal? (5) How does the unsuitable distribution have an impact on Halal implementation?	
Availability of separate storage rooms to store Halal meat from non-Halal meat <i>1. Facilities and equipment</i> <i>2. Factory layout</i>	(1)How does malfunctioning tools have an impact on the implementation of Halal? (2) To what extent does the lack of equipment maintenance influence the implementation of Halal?	[1,2] (tool* OR equip*) AND (Halal* AND implement*)
Managerial factors		
Information capacity and exposure	What effect can a lack of information capacity and exposure on Halal have on meat companies while implementing Halal certification?	(effect*) AND (inform* OR capacity*) AND (Halal* AND implement*)
Training and attributes of employee	How does a lack of trained and attributed employees influence meat companies on Halal implementation?	(effect* OR influenc*) AND (training* AND employ*) AND (Halal* OR implement*)
(1) Top management commitment (2)policy and procedures	(1)How does a lack of Halal awareness within top management influence meat companies on Halal implementation? (2)To what extent a lack of policy and procedures on Halal implementation influence meat companies on its implementation?	[1,2] (Halal* AND aware* AND top* AND manag*) AND (implement* OR procedure*)
External factors		
(1)certification bodies (2) Accreditation bodies and government intervention	(1) How does the choice of a certification body influence meat companies on Halal implementation? (2) To what extent the intervention of government or accreditation body can affect meat companies on Halal implementation?	[1,2] (Halal* AND certificat* and accreditat* OR government* AND implement*)
(1) Halal raw material	(1)To what extent can the supplier influence meat companies on Halal	[1,2] (availab* AND suppl* consum*) AND(Halal* OR implement*)

supply (2) Halal market and the presence of consumers	implementation? (2) To what extent do the availability of consumers contribute to meat companies on Halal implementation?	
(1)Cost of Halal implementation (2)Industry competition and consumer satisfaction	(1)How does the higher cost of Halal implementation influence meat companies on Halal implementation? (2) How does the higher competency within industries contribute to meat companies on Halal implementation?	[1,2] (Halal* AND high* AND cost* OR implement*)
(1)Religion (2) Strict Halal requirements	(1)How does differences in religious interpretation influence meat companies on Halal implementation? (2) To what extent does the strict Halal requirements contribute to meat companies on Halal implementation?	[1,2] (Halal* AND religion* AND strict* OR requir* AND implement*)

Annex III: Email sent to experts

The email that was sent to the Dutch meat companies to request their participation in this research.

Dear Sir/Madam,

The aim of this email is to ask you for your cooperation in my research project on Halal implementation. My name is Christella Lydia Uwineza. I am a student at Wageningen University and Research. I am pursuing my master program in Food Quality Management and I am now in the stage of doing my master thesis project. The project is about “factors that influence the implementation of Halal certification by Dutch meat companies”. I searched in different ways and found your profile on LinkedIn and found your website. In this study, I want to conduct interviews with company managers to gain more insights on the challenges that companies are facing while implementing Halal certification. The aim of conducting interview is to be informed about the daily practices in companies when implementing Halal.

It is in that regard, that I am requesting for an interview from you/ quality manager of the company. The interview can preferably be a face to face or via video call. The interview will take about half an hour of your time.

I would like to address that if you are willing to participate, the participants will be anonymous; neither your name or the name of your company will end up in my thesis report. The interview is solely for academic purposes and will be treated confidentially. If you are interested, I could give you feedback on the results of the research.

I look forward to hearing from you.

Thank you for your consideration.

Kind regards,

Christella

Annex IV: Interview procedure and a questionnaire

Thank you for participating in this interview on the factors influencing the implementation of Halal certification by Dutch meat companies. I am Christella Uwineza. I am pursuing my masters in Food Quality Management at Wageningen University & Research.

The aim of this interview is to identify which technological, managerial and external factors influences the implementation of Halal certification in practice.

The interview will take around 45 minutes.

Structure: I will start with an introductory question to gain an overall perspective. Followed by questions about technological factors, managerial factors and external business factors.

Can I have your permission to record this interview? Afterwards, this record will be deleted since it is only used for data analysis. Of course this interview will be treated anonymously and confidentially.

Table 8: Questionnaire

Steps in production
1. What are the major steps involved in the production of Halal meat?
Topic 1: Technological factors
Proper animal handling and religious slaughter
2. How do you select the animal to be slaughtered in your company?
3. How do you ensure in your company that the animal was feed according to Islamic requirements (EA: not feed with meats of other animals, blood etc)?
4. How do you treat animal during lairage (before slaughter)?
5. Do you conduct stunning method in your company? why
6. Could you mention possible problems in your company that can arise during this procedure of stunning that can lead to the production of non-Halal meat?
7. Which criteria are used in your company to select the knife to use during slaughter? EA (the size of the knife, sharpness, stainless steel)
8. Which criteria do you use to select the slaughter person? EA (Muslim, Jew, Christian)
9. Which training does the slaughterer have? Why?
10. How do you slaughter Halal animal ? Which position does the animal face during slaughtering?

11. How is invocation practiced in your slaughter house? EA (The slaughter person keeps invoking Bismillah, Allahu akbar, a playback of Bismillah, Allahu akbar)

Presence of effective cleaning guidelines and programs to avoid cross contamination

12. How do you maintain the authenticity of Halal meat during production/slaughtering?

13. Do you separate tools used to handle Halal meat and non-Halal meat? Yes/No

Probing: If yes, how often do you check if equipment being used in production/slaughtering of Halal and non-Halal are being constantly separated?

14. How is the production/slaughtering line organized in your firm?

Probing: Do you separate the Halal and non-Halal production line? Yes/No

15. How is Halal products coming from your company treated during transportation?

Probing: Do you separate Halal and non-Halal meat during transport? Yes/No

16. Do you have different trucks for the transport of Halal and non-Halal meat? Yes/No

17. How is the transport vehicle/container ritually cleaned?

Proper equipment and separation of storage rooms for Halal meat and non-Halal meat

18. Is the actual presence of equipments, availability of storage rooms, appropriate trucks to transport Halal meat, influencing the Halal integrity? Why?

Topic 2: Managerial factors

Halal awareness within top management, training and attribute of employees

19. Do you think that the top management's commitment in your company is an influential indicator that can be useful in measuring the implementation of Halal certification? Why?

20. How do you make sure that employees are well aware of Halal implementation procedures? EA: internal training manager- employees, video trainings, attending seminars...

Probing: Do you conduct any follow up after training? EA: Yes/No

Information capacity and exposure

21. How do you keep on updating Halal requirements in your factory?

Policy and procedures

22. How do you ensure that Halal requirements/procedures are readily available to the workers? EA: right next to them, on the factory floor, in the quality control department, in the administration

23. Is it allowed to consume an lawful food and drinks in your factory (e.g. pork, alcohol) Yes/No?

Cost of Halal implementation

24. Does the Halal implementation increase the cost of the product? Probing: If yes, please indicate how?

Topic 3: External factors
Certification body
25. What are the criteria used to select a certification body by your company? Probing: Which certification body certifies your company?
Accreditation body and government intervention
26. Do you consider the accreditation body while selecting a certification body? Yes/No; why?
Halal raw material supply
27. Which criteria do you use to select a supplier?
Halal market and the pressure of consumers
28. Do consumers pressure you to use certain Halal requirements? If Yes, which?
Strictness and complexity of Halal requirements
29. According to you, which requirements are challenging your company to implement Halal certification Probing: Is the Halal requirements easy or hard to follow?
Industry competition
30. What is the most important reason why your company implement Halal certification? EA (to maintain the Halal integrity for the consumer, cause of the growing Halal market, for the competition with rival)

EA: expected answer

Annex V: The transcripts of expert interviews

Factors	Questions	Company 1	Company 2	Company 3
Technological factors				
Proper animal handling and religious slaughter	<p>1.What are the major steps involved in the production of Halal meat?</p> <p>2. How do you select the animal to be slaughtered in your company?</p> <p>3. How do you ensure in your company that the animal was fed according to Islamic requirements (EA: not feed with meats of other animals, blood etc.)?</p> <p>4.How do you treat animals during lairage</p>	<p>1.It was mentioned that all steps involved in Halal slaughtering are important as all production is Halal.</p> <p>2. No big distinction since only chickens are slaughtered in the factory.</p> <p>3. We have contacts with feed companies.</p> <p>4. Animals to be slaughtered are kept for resting. The expert mentioned that they keep animals for like 2hours of resting before slaughter.</p> <p>5. The electric water bath stunning method was confirmed</p>	<p>1&2. The expert mentioned that only calves are slaughtered which means that all are Halal animals. He explained that it's easier to slaughter only calves.</p> <p>2.We have two main suppliers. They are certified farms. Feed always come from GMP+ certified suppliers (a well-controlled source).</p> <p>4. It was mentioned that veal are transported from the farm according to the standards and according to European legislation. - Before unloading on the site always a veterinarian is available to check if the animals are health. They do official control and also check animal welfare. -Animals rest well before slaughter</p>	<p>1.The respondent mentioned that the most important steps are checking if the birds are alive when they enter the slaughter, check of the knife and if the birds are still breathing after the gas stunning.</p> <p>2&3.It's only birds to be slaughtered which means that they are Halal. Birds should be fed of animal feeds which are accepted by European law. Birds should not be fed of other animals or blood.</p> <p>4.Birds are always stored in the area and wait before going on the slaughter line (recommended time was a minimum of 30 minutes and a maximum of 3 hours of rest before slaughter).</p> <p>5. Gas stunning method was</p>

	<p>(before slaughter)?</p> <p>5. Do you conduct a stunning method in your company? Why</p> <p>6. Could you mention possible problems in your company that can arise during this procedure of stunning that can lead to the production of non-Halal meat?</p> <p>7. Which criteria are used in your company to select the knife to use during slaughter? EA (the size of the knife, sharpness, stainless steel)</p> <p>8. Which criteria do you use to select the slaughter person? EA (Muslim, Jew, Christian)</p>	<p>by the expert. He explained that it is a reversible method which can not cause any harm. The respondent stated that the use of gas method damages the brain of chickens.</p> <p>6. It was mentioned that stunning method doesn't have an effect since it doesn't damage the brain.</p> <p>7. Knives they use during a Halal slaughter are sharp knives with the length of 25cm.</p> <p>8. We only use Muslims for slaughter. They are also checked and audited by the Halal certification body.</p> <p>9. All slaughter men before starting the job they are trained. They are always updated and educated about animal welfare (COUNCIL REGULATION (EC) No 1099/2009).</p> <p>10. Animals should be slaughtered facing the makkah.</p> <p>11. Slaughter men mention the name Allah during slaughtering.</p>	<p>(like 1 hour of rest). Yet, animals needs to be slaughtered as quick as possible.</p> <p>5. The stunning method was confirmed because of many calves to be slaughtered per day (like 1500/day). The expert mentioned that it is impossible to do that humanly without stunning. It can give pressure to slaughter men to cut in Halal way if they are on a time pressure so you better stun them before slaughtering. -It was mentioned that stunning is mandatory in the veal retailing and slaughtering in the Netherlands</p> <p>6. It was mentioned that there is no issue with stunning method since after stunning the veal is slaughtered immediately which means that there are no issues of veal getting unconscious. -The expert mentioned that you can still see from a blood flow that the heart is still bumping and that the calves is still alive.</p> <p>7. We have knives that are special i.e. which are sharp only for the Halal slaughter. They should be</p>	<p>confirmed. -There is a tool to put on wings of birds for the measurement of heartbeat/heart rate before slaughter.</p> <p>6. It was mentioned that there is no problem with stunning method since it doesn't kill the birds. The expert recommended to check if birds are still breathing before slaughter.</p> <p>7. Knives should be sharp (automatic knives) and hand knives should always be sharpened again. They should be changed on every shift as well.</p> <p>8. Slaughter men should be Muslim.</p> <p>9&10. Slaughter men should be trained about a Halal slaughtering and position they should slaughter on.</p> <p>11. Slaughter men makes a prayer (mention the name of Allah) while slaughtering.</p>
--	--	--	--	--

	<p>9. Which training does the slaughterer have? Why?</p> <p>10. How do you slaughter Halal animal? Which position does the animal face during slaughtering?</p> <p>11. How is invocation practiced in your slaughterhouse? EA (The slaughter person keeps invoking Bismillah, Allahu akbar, a playback of Bismillah, Allahu akbar)</p>	<p>Also, they declare that to our certification office. We have a written statement for that.</p>	<p>checked before every slaughter and they should be audited by the certification body.</p> <p>8. All slaughter men are Muslim and should be suitable for the job.</p> <p>9. Slaughter men are trained for the Halal slaughtering methods</p> <p>10. After stunning veal is immediately turned in a Halal position for being cut.</p> <p>11. No invocation.</p>	
--	--	---	---	--

<p>Presence of effective cleaning to avoid contamination</p>	<p>12. How do you maintain the authenticity of Halal meat during production/slaughtering ?</p> <p>13. Do you separate tools used to handle Halal meat and non Halal meat? Yes/No</p> <p>Probing: If yes, how often do you check if equipment being used in production/slaughtering of Halal and non-Halal are being constantly separated?</p> <p>14. How is the production/slaughtering line organized in your firm?</p> <p>Probing: Do you separate the Halal and non-Halal production</p>	<p>12. It was mentioned that there cannot be any type of contamination with non-Halal product as all products are 100% Halal. The quality of the Halal products should always be maintained. 75% is hand cut and 25% is machine cut. That is the different we put on our labels.</p> <p>13. It was mentioned that there is no need of separating tools since it is a 100% Halal slaughter (only chicken are slaughtered).</p> <p>14. Only one Halal meat production line.</p> <p>15. The quality should be maintained</p> <p>16. N/A</p> <p>17. N/A</p>	<p>12. It was mentioned that only calves are slaughtered so all products are 100% Halal.</p> <p>13. It was mentioned that there is no need of separating tools since it is a 100% Halal slaughter (only calves are slaughtered).</p> <p>14. Only one Halal meat production line.</p> <p>15&17. Trucks should be cleaned and disinfected before being loaded.</p> <p>16. N/A</p>	<p>12. It was mentioned that everything in the slaughterhouse is Halal. Since all birds slaughtered are 100% Halal. No need to check if they are Halal or not.</p> <p>13. It was mentioned that there is no need of separating tools since it is a 100% Halal slaughter (only chicken are slaughtered).</p> <p>14. Only one Halal meat production line.</p> <p>15 &17. There should be a washing place on the site. Trucks should be cleaned with water, soap and disinfection. Even boxes used to carry birds to the slaughter house should be cleaned and disinfected.</p> <p>16. N/A</p>
--	---	---	---	---

	<p>line? Yes/No</p> <p>15. How is Halal products coming from your company treated during transportation?</p> <p>Probing: Do you separate Halal and non-Halal meat during transport? Yes/No</p> <p>16. Do you have different trucks for the transport of Halal and non-Halal meat? Yes/No</p> <p>17. How is the transport vehicle/container ritually cleaned?</p>			
--	---	--	--	--

<p>Proper equipment and separation of storage rooms for Halal and non-Halal meat</p>	<p>18. Is the actual presence of equipment, availability of storage rooms, appropriate trucks to transport Halal meat, influencing the Halal integrity? Why?</p>	<p>18. It was mentioned that the separation of storage room is not required since its's only a Halal slaughter.</p>	<p>18. It was mentioned that the separation of storage room is not required since its's only a Halal slaughter.</p>	<p>18. It was mentioned that the separation of storage room is not required since its's only a Halal slaughter.</p>
<p>Managerial factors</p>				
<p>Top management commitment, training and attribute of employees</p>	<p>19. Do you think that the top management's commitment to your company is an influential indicator that can be useful in measuring the implementation of Halal certification? Why?</p> <p>20. How do you make sure that employees are well aware of Halal implementation procedures? Probing:</p>	<p>19. We have made decision long ago to slaughter only Halal and top management agreed. That is the reason why we always have Halal certificate.</p> <p>20. In our company we all know that we are producing Halal products. We don't really have to tell them.</p> <p>-In case we identify something wrong during slaughtering we always discuss it with slaughter men and train them again.</p> <p>-There is a Halal team in the slaughterhouse to train and inform on Halal slaughter. We always discuss how Halal animal should</p>	<p>19. It was mentioned that if top management is committed, of course, the company will go for Halal and they can decide if it's to be 100% Halal.</p> <p>20,21&22. Halal procedures and requirements are posted everywhere in the factory for employees to see always.</p>	<p>19. It was mentioned that when top management are committed, they will emphasize the implementation of Halal certification.</p> <p>20. We provide a Halal training for employees in the factory.</p> <p>-We conduct an internal audit to checks if people on the flow are still implementing Halal requirements.</p>

	Do you conduct any follow up after training? EA: Yes/No	be slaughtered.		
Information capacity and exposure	21. How do you keep on updating Halal requirements in your factory?			21&22. Procedures should be available for each employee who is working at the factory. It should be a part of quality manual to keep procedures available to workers.
Policy and procedures	22. How do you ensure that Halal requirements/procedures are readily available to the workers? 23. Is it allowed to consume lawful food and drinks in your factory (e.g. pork, alcohol) Yes/No?	22. We have a Halal teamwork to discuss procedures and Halal requirements in our HACCP system. 23.It was mentioned that Non-Muslim employees can consume what they want even if it can be Haram.	23. It was mentioned that on the workflow is no eating and drinking according to food safety policy. Yet, outside non-Muslim can consumer what they want.	23. It was mentioned that outside the production area employees can consume what they want.

Cost of implementation	24. Does the Halal implementation increase the cost of the product?	24. It was mentioned that the implementation of Halal increases cost because only a cutting knife need 1-2 slaughter men so we need to plan more slaughter men (10-50 slaughter men a day). Thus, this increases the cost.	24. It was mentioned that every standard increases cost.	24. It was mentioned that the implementation of Halal do not increase the cost. Only few additional cost for the certification body audit to check if the company are still working under Halal requirements.
External factors				
Certification body	25. What are the criteria used to select a certification body by your company? Probing: Which certification body certifies your company?	25. The expert mentioned that the criteria they use to select a certification body first are that they control what the certification body does. Some certification body are expensive. Certified by Halal Quality Control	25. The expert mentioned that they check if the certification body to certify them is approved in countries they export their products. Certified by Halal Quality Control	25. The expert mentioned that they check for a certification body that will certify their Halal products with their requirements (like the certification body that certify the Halal meat which has been gas stunned). They can't select a certification body that is against stunning. Certified by SGS from Germany
Accreditation body and government intervention	26. Do you consider the accreditation body while selecting a certification body? Yes/No; why?	No.	26. Not so relevant. The accreditation body is important in case of opening a new market.	26. No, only deal with a certification body

Halal raw material supply	27. Which criteria do you use to select a supplier?	27. Criteria to select a supplier are the cost and the thinking of the Halal certification office.	27. Criteria to select a supplier is the cost	27. The expert mentioned that there are no special requirements for Halal live birds. He also mentioned that in Europe it's not allowed to feed animals by other animal products. So as long as they are assured that the birds are Halal the only criteria to select a supplier is the cost.
Halal market and presence of consumers	28. Do consumers pressure you to use certain Halal requirements? If Yes, which?	28. It was mentioned that sometimes consumers can pressure to implement Halal as they sometimes have doubt on what the company produces. The expert stated that they always allow consumers to visit and check how Halal products are produced. They are always convinced about our working method.	28. It was mentioned that sometimes consumers can pressure to implement Halal since some consumer has different believe for example on stunning. The expert mentioned that the company follow Halal requirements. -He stated that they always allow inspectors and auditors to come and see what is being done on the sites..	28. It was mentioned that consumers do not pressure to implement Halal. The expert mentioned that as long as there is consumer satisfaction there is no need of being pressured by them.
Strict Halal requirements	29. According to you, which requirements are challenging your company to implement Halal certification	29. The expert mentioned that for now there are no challenges as they are used to the business. He mentioned that for the future they will have a challenge when they won't be allowed to hang chicken alive in the system. He thinks that it will be a discussion in 5-10 years to come.	29. The expert mentioned that the biggest challenge is that Halal standard is turning into a complete food management system i.e it's evolving. -Sometimes suppliers are unaware of what Halal means or Halal impact. -Sometimes supplier don't want to apply for Halal certificate which breaks the Halal chain and this brings a barrier.	29. The expert mentioned that there is no big issue. He mentioned that the most important thing is to control the setting of the gas stunning and the trained slaughter men to check what his doing and replace him once tired rather than that he mentioned that there is no issue.

			-Some suppliers thinks that Halal is a complicated thing.	
Industry competition and consumer satisfaction	30.What is the most important reason why your company implement Halal certification?	30. It was mentioned that the most important reason they implement Halal is for the integrity and the satisfaction of the consumer. -for competing with other slaughterhouses -for extra value of the product	30. It was mentioned that the most important reason to implement Halal is to be able to export veal all over the world (mostly to Islamic countries). -To not close the market and competition with other slaughterhouses. -For satisfying Muslim consumers as they are becoming many so is their consumption market.	30. It was mentioned that the most important reason to implement Halal is to meet customer requirements and to satisfy them.