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Randeree, K

Author post-print (accepted) deposited by Coventry University's Repository

Original citation & hyperlink:

Randeree, K 2019, 'Challenges in halal food ecosystems: The case of the United Arab Emirates', *British Food Journal*, vol. 121, no. 5, pp. 1154-1167.

<https://dx.doi.org/10.1108/BFJ-08-2018-0515>

DOI 10.1108/BFJ-08-2018-0515

ISSN 0007-070X

ESSN 0007-070X

Publisher: Emerald

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Journal:	<i>British Food Journal</i>
Manuscript ID	BFJ-08-2018-0515.R1
Manuscript Type:	Research Paper
Keywords:	Halal supply chain management, Halal food certification, Islamic law, Muslim consumer behaviour, United Arab Emirates

Challenges in halal food ecosystems: The case of the United Arab Emirates

Abstract

Purpose

The purpose of the paper is to investigate challenges in balancing interoperability, food quality and customer satisfaction in halal food supply chains.

Design/methodology/approach

The study employed ethnography and grounded theory research methodologies. Research methods were ethnographic content analysis (ECA) and document content analysis. The research framework encompassed a range of stakeholder groups connected with the halal food supply chain in the United Arab Emirates (UAE), focussing on Islamic jurisprudence, halal food sector analysis, import regulation compliance, halal food certification (HFC), food production, retailing and consumption.

Findings

The research found that supply chain intermediaries are challenged in balancing interoperability issues around non-unified global certification standards. Consequent variability in customer confidence in halal standards was found.

Research limitations/implications

This research focussed on the internal supply chain in the UAE, with future scope in HFC systems among external supplier nations and wider market research on customer perceptions of halal food integrity.

Practical implications

Transferability of the findings is high; to other halal food markets in particular, as well as supply chain systems for halal products across other **Islamic economy sectors**, notably halal pharmaceuticals and cosmetics. **Aligning the halal ecosystem with trends in healthy eating and environmentalism is also considered.**

Originality/value

The paper uniquely explores the halal food sector from the perspective of variant stakeholder disciplines in halal sector governance and operation. It exposes vulnerabilities in halal supply chains in a nation with **one of** the most demanding and diverse agri-food supply systems in the world.

Keywords

Halal supply chain management; Halal food certification; Islamic law; Muslim consumer behaviour; United Arab Emirates

Paper Type

Research Paper

1. Introduction

Halal is an Arabic term that bears the meaning of permissible according to shari'ah, or Islamic law (Riaz and Chaudry, 2003). Beyond its jurisprudential meaning, its contemporary usage has become synonymous with the narrower context of Muslim dietary law (Kashim *et al.*, 2015), especially in the context of food sourcing, most prominently, meat and poultry (Al-Qaradawi, 2013). However, it is also used to refer to a number of other products and services across the Islamic economy (Randeree, 2019), such as halal pharmaceuticals, halal cosmetics and halal tourism (Reuters and Standard, 2016).

The need for consumables, goods and services to be shari'ah-compliant has been a matter of importance to Muslims since the emergence of Islam in the seventh century. For much of the intervening time, halal standards have largely been taken for granted, with societies being insular and Muslim communities essentially being cohesive, such that matters aligning religious practice with dietary needs were congruent. More recently, with the progression of globalisation (Kolodko, 2018), "the rise of Islamic visibility" (Rakhmani, 2016) across Muslim minority environments and increasing mobility of people, goods and services, together with an emerging Muslim middle-class consumer-base, especially in the Western hemisphere and Arabian Gulf region (Nasr, 2010), there is a growing consciousness that Muslims have specific needs for faith-friendly products and services (Randeree, 2019). Halal is consequently becoming a global phenomenon (Haleem and Khan, 2017), transcending merely a religious concern, into becoming an attractive and lucrative market in international business and global trade (Lada *et al.*, 2009).

This research uniquely explored the halal food market in the UAE from the perspective of variant stakeholders in halal food sector operations, governance and consumption to reveal vulnerabilities in the halal food supply chain and its impact on customer confidence in halal integrity. The investigation was based on the UAE food sector, as the **obstacles** the country's

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3 halal ecosystem presents are significantly more challenging than those of other countries,
4 largely due to high demographic diversity, as well as the consequent efforts its government and
5 other institutions are necessitated to make in order to solve these challenges.
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10 11 12 **2. Literature Review**

13 14 15 **2.1 Halal food in Islam**

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17 For Muslims, ensuring food is halal is of paramount importance, as this is a requirement
18 prescribed in the Qur'an, the source of immutable, divine law (Bashir *et al.*, 2018). The
19 guidance of the Qur'an and the tradition of the Prophet Muhammad (peace be upon him),
20 encompasses the food's permissibility and compliance to religious standards of slaughter
21 (halal) and to its goodness, wholesomeness and quality (known as *tayyib*) (Alzeer *et al.*, 2018).
22 The Qur'an states these two criteria, "...Eat of what is on earth, (religiously) lawful (halal) and
23 good (*tayyib*) ..." Q. 2:168.
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33 Halal meat production and supply is therefore a holistic process, not merely one of slaughtering
34 animals in a ritualistic manner, but for example, that animals are raised on halal feed and
35 financial investment is shari'ah-compliant (Antara *et al.*, 2016). The halal supply chain thus
36 not only includes how the food was obtained and distributed but also determining whether or
37 not it is *tayyib* - pure, clean, wholesome and nourishing, which impacts monitoring of food
38 ingredients, traceability (Poniman *et al.*, 2015), cross contamination issues with non-halal
39 foods (Soon *et al.*, 2017), supply chain integrity (Ali *et al.*, 2017) and customer satisfaction
40 (Yusoff *et al.*, 2015).
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51 Islamic tradition of halal meat sourcing in particular, does not differ significantly from Jewish
52 kosher meat, which is **widely** considered permissible for Muslim consumption according to the
53 Qur'an (Regenstein *et al.*, 2003) as the food of the "People of the Book," **the Qur'an stating,**
54 **"This day are (all) things good and pure made lawful unto you. The food of the People of**
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3 **the Book is lawful unto you and yours is lawful unto them...” Q. 5:5.** Islam, being part of
4 the succession of Abrahamic tradition, preceded by Judeo-Christian teaching (Jump, 2002)
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7 **thus** shares many common principles (Tieman and Hassan, 2015), including **many** aspects of
8 dietary law.
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11 12 13 14 15 **2.2 Global halal food ecosystem**

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17 Today, the global food and agricultural industry is valued at \$8.1 trillion, with fresh food and
18 agricultural produce accounting for 52.6 percent of the total value and packaged foods
19 contributing the rest (McErlich and Boydston, 2014). Within this, the halal food sector is
20 valued at \$1.2 trillion, with a high annual growth rate of 8.5 percent forecasted until 2021
21 (Armanios and Ergene, 2018). This, in part, is due to population size and growth rate, with
22 Muslims accounting for 1.8 billion people, or 24 percent, of the worldwide population. This is
23 increasing more rapidly than the global average, estimated to reach 2.8 billion, or 29.7 percent
24 of the global population by 2050 (Pew Research Center, 2017). Affluence is also a growth
25 factor, through improvement in the socio-economic status of Muslim households in certain
26 regions, particularly Arab Gulf States (Watenpauh, 2014) and Muslim minority countries in
27 the West, leading to larger disposable incomes as well as greater buying power for branded
28 products. Consumer consciousness in HFC is simultaneously rising significantly (Ab Talib *et*
29 *al.*, 2017; Ahmad *et al.*, 2015) leading to issues of trust in the integrity of halal systems and
30 supply chains (Bonne and Verbeke, 2008).
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49 Apart from the United Arab Emirates (UAE), a number of countries demonstrate developments
50 towards a national halal industry (Mahidin and Mohd Saifudin, 2017), with Malaysia showing
51 strong, government-led halal food regulation and services (Zailani *et al.*, 2015) such as halal
52 logistics (Fathi *et al.*, 2016), traceability (Zailani *et al.*, 2010), packaging, branding and
53 marketing, Malaysia provides value-adding activities for the world halal food market (Habib
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3 *et al.*, 2011) as well as being the most developed Islamic economy overall (Othman *et al.*,
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5 2009), having strength in the Islamic finance and halal tourism sectors (Henderson, 2003). Its
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7 central government implements HFC through its own certifying agency, the Malaysian Islamic
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9 Development Department, known as JAKIM (Othman *et al.*, 2016) and the public show a
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11 willingness to pay a premium to ensure integrity of halal systems (Tieman *et al.*, 2013). As for
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13 Muslim minority countries, a few contributors as halal food producer nations have been central
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15 to the development of the global halal food market. Thailand's export market makes up around
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17 60 percent of its gross domestic product (Qureshi *et al.*, 2012) and is among the top five global
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19 food exporters, penetrating the global halal food market substantially with an export value of
20
21 \$6 billion. Singapore exports halal food with approved HFC through the Islamic Religious
22
23 Council of Singapore, known as MUIS (Majlis Ugama Islam Singapura) (Wahab *et al.*, 2016).
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25 Meat-exporting countries such as Brazil, Australia and New Zealand, in particular, have
26
27 become essential to meeting the halal food requirements of many Muslim majority countries.
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29 Brazil is the leading exporter of halal beef and poultry into the global market (Manning *et al.*,
30
31 2007) contributing 55 percent of the total halal meat supply worldwide and ensures 70 percent
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33 of its frozen chicken, supplied to over 100 countries, is halal-certified. Australia specialises in
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35 meat products and has strong production and export capability in the global halal food market
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37 (Kabir, 2015), which accounts for approximately 10 percent of the country's meat export and
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39 a trade value of 9 percent of halal meat supply globally. New Zealand is the world's largest
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41 exporter of halal-slaughtered sheep meat and has a history of halal exportation since 1976
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43 (Wan-Hassan and Awang, 2009).
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54 ***2.3 The UAE context: demographic challenges, food retailing and halal standards***

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56 The UAE is located at the southern tip of the Arabian Gulf, with three neighbouring countries
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58 - Saudi Arabia, Qatar and Oman and is governed by a federal system founded in 1971 (Alfaki
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3 and Ahmed, 2017). The earlier discovery of crude oil and its commercial production in the
4 UAE created a new economic situation that allowed the country to modernise over the past five
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and Ahmed, 2017). The earlier discovery of crude oil and its commercial production in the UAE created a new economic situation that allowed the country to modernise over the past five decades (Abou Hana, 2017), with the economy diversifying into trade, finance and tourism and infrastructure investment in information and communications technology as well as large scale construction projects (Randeree and Chaudhry, 2007). The UAE thus transcended its subsistence economy beginnings into a thriving innovation-driven economy. High growth rate has resulted in the need for skilled foreign professionals to support economic development (Randeree and Gaad, 2008). Rapid development has directly influenced population growth through demand for foreign workers (Haak-Saheem and Brewster, 2017). The Muslim population of the UAE stood at 1.62 million in 1990, currently is 3.58 million and is forecasted to rise to 4.98 million by 2030 (Pew Research Center, 2011). In addition to citizens of the UAE, or Emiratis, there resides a significant and diverse migrant workforce, known as expatriates or expats (Randeree, 2009), comprising various Arab nationalities, Iranians, Filipinos, South Asians (particularly Indians), Europeans and Americans (Randeree, 2012). The dependence on a foreign workforce has meant that UAE citizens constitute only one-fifth of the national population, **with** the labour market substantively male **foreign-worker** dominated (Augsberg *et al.*, 2009). **In terms of Muslim practice, this ‘melting pot’ of Muslim citizenry together with a religiously diverse expatriate workforce and their families, has resulted in social divergence, such that large metropolitan cities, particularly Dubai, where many expatriates reside, are outwardly liberal, whereas other urban and more rural areas are visibly more religiously conservative. Other aspects of life, such as political and legal systems are naturally governed by ruling Emirati classes and are based on Islamic principles and Emirati personal lifestyle is largely faith-based, concealed and intensely private.**

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3 Such demographic diversity has a resulting impact on consumer choice and demand in the food
4 retail sector (Todd, 2017). There is great diversity in terms of consumption and expenditure
5 patterns in the UAE. Less affluent workers, primarily foreign labourers, remit the majority of
6 their income to their families in their homeland (Jain and Oommen, 2017), minimising their
7 own personal living costs in the UAE and often living in a collective household where food,
8 housing, transportation and telecommunications are their main expenditures (Randeree, 2008).
9 Professional expats are more affluent with considerable purchasing power (Nasr, 2010) and
10 shop for more Western brands. Unlike most foreign labourers, many of these prosperous expat
11 employees can afford to have their immediate families living with them in the UAE,
12 intensifying an already high-mass consumption society (Abed and Hellyer, 2001) and creating
13 demand for private healthcare and school services, upmarket housing, as well as recreational
14 facilities, most prominently, lavish shopping malls (El-Adly and Eid, 2017).

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Congruent with global growth in food consumption, the retail food sector in the UAE is thriving and has proven lucrative to foreign companies, whether tier one outlets or tiers two and three suppliers and producers (Al Faris and Soto, 2016). In 2010, total food product consumption was valued at close to \$4 billion in the UAE and food consumption increases by approximately four percent per annum (The Economist, 2010), partly due to hypermarkets becoming the catalyst for high grocery sales in the UAE as well as across the broader MENA region (ElMelegy *et al.*, 2017). Carrefour, Geant, Choitram, Spinneys, Waitrose, Mega Mart, Lulu, Abu Dhabi Co-operative Society, Emirates Co-operative, Union Co-operative Society and Safeer are all major players in the sector. The market share of Lulu stood at 35 percent, followed by Carrefour at 25 percent and Spinneys with 15 percent (Broomhall, 2011).

The UAE federal government has responsibility for both HFC standards and food safety (Al Yousuf *et al.*, 2015). The Ministry of Environment and Water is responsible for food control services, policies and regulations at the national level and compliance of all imported and

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3 locally produced food, is delegated to each emirate; Dubai Municipality in the case of Dubai.
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5 Regulatory compliance is to standards issued by The Emirates Authority for Standardisation
6 and Metrology (ESMA), and The Codex Alimentarius Commission General Principles of Food
7 Hygiene (CAC/RCP 1-1969), or CODEX (Latif *et al.*, 2014), which articulates key
8 requirements for hygienic and safe food production. There is scope for HACCP (Hazard
9 Analysis and Critical Control Point), an effective system for enhancing food safety, to be
10 incorporated universally into Halal assurance, though this is presently an emerging as well as
11 challenging concept (Demirci *et al.*, 2016). The Gulf Halal standard ensures halal meat
12 production is in line with shari'ah requirements across feeds, handling, logistics and
13 distribution under Gulf Standards Organisation GSO2055, which incorporates all guidelines
14 for HFC bodies and their accreditation requirements (Tieman, 2015). The Food Control
15 Department and Dubai Central Laboratory at Dubai Municipality are the two bodies charged
16 with monitoring food imports, production and supply; testing for safety, health and hygiene on
17 foodstuffs extending to food borne viruses, toxins and contagious disease detection across
18 processed, frozen, chilled or live produce; inspecting hotels and commercial restaurants; and
19 testing for companies seeking compliance documentation for importing, distributing and
20 selling goods in Dubai (Abushelaibi *et al.*, 2015). Despite the challenges, the UAE is
21 proactively addressing issues in food importation, safety and HFC, with the aim of satisfying
22 the needs of an economically and culturally diverse society.
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49 **3. Methodology**

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51 The research methodology was an ethnography of the halal food ecosystem in the UAE. The
52 ethnographer performed as a multilingual (English, Arabic, Hindi and Urdu) embedded
53 researcher (Lewis and Russell, 2011), using collaborative and reflexive practitioner approaches
54 as part of the sample population.
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3 **Ascertaining consumer insights within a variable halal ecosystem requires long-term**
4 **investigation. As such, data was collected through subjective customer perception**
5 **examination, accumulated longitudinally between 1999 and 2017, inclusive, with time-**
6 **relative bias excluded by varying individuals and organisations involved, thus avoiding**
7 **panel attrition, increasing sample size and enhancing flexibility and accuracy. The UAE**
8 **sample comprised circa 1,250 interactions, formal and informal consumer respondents**
9 **and professional interviewees among the following stakeholder sets: consumers; retail**
10 **businesses, suppliers and marketeers; technical experts in food security, inspection,**
11 **accreditation and safety; policymakers; high-level state clerics; and Muslim scholars,**
12 **academicians and professionals, both in the UAE and internationally.**
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26 Ethnography is a subjective methodology and objectivity of an ethnographer is subject to bias
27 (Rohner *et al.*, 1973). The ethnographer in this study is male, Muslim, of South Asian British
28 heritage. The ethnographic content analysis (ECA) method, defined as the reflexive analysis
29 of documents (Altheide, 1987), was applied, whereby document collection and content analysis
30 covered key stakeholders, informing on Islamic law, halal logistics and supply chain and food
31 retailers. Further, product data was collected through direct observation method (Wells and Lo
32 Sciuto, 1966) in retail outlets in major cities of the UAE and among variant districts
33 representative of the diversity of inhabitant nationalities. The accumulated data was categorised
34 and coded to determine the four key propositions presented, using the grounded theory
35 approach (Corbin and Strauss, 1990).
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51 **4. Results and Analysis**

52 **The findings demonstrate a range of issues emerging from the research using grounded**
53 **theory methodology. Though too numerous to list exhaustively, examples of open coding**
54 **data sets include importation regulation; food safety, control and testing; country of**
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3 **origin of products and consumer confidence; variation in the perception of the need for**
4 **the use of ‘halal’ as required terminology within a Muslim majority country; abattoir**
5 **systems and processes; halal certification systems and their effectiveness and reliance;**
6 **food types for which consumers would wish to see availability of halal options; variability**
7 **in consumer and retail supply chain professionals’ expectations for unifying global halal**
8 **certification and governance; and inconsistency of consumer confidence, disaggregated**
9 **by age, nationality, ethnicity, intra-faith perspectives (Randeree, 2016) and other**
10 **demographic traits.**

11
12 **Analysis through the selective codification of all collected data sets were subsequently**
13 **categorised into four propositions concerning the halal ecosystem.** These propositions are
14
15 (1) consumer confidence in halal product importation, (2) consumer trust in state regulation of
16
17 global halal supply chains, (3) consumer confidence in halal branding of products and (4)
18
19 consumer perceptions of non-halal ingredients and replication of non-halal brands. **These**
20 **highlighted consumer trust and confidence as the key facets of theoretical codes.**

21 22 **4.1. Consumer confidence in halal food importation**

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Consumer trust and confidence in the halal supply chain was found to be affected by the
country of origin of food products. Importation from Muslim minority countries requires HFC
from a UAE approved body in the supplier country, as opposed to Muslim majority countries
whose supply chains are considered halal in the UAE, therefore requiring no HFC for export.
Production in Muslim minority countries is controversial as once UAE authorities have
certified import into the UAE, no further regulations are applied within the supplier nation.
Consequently, Muslim consumers hold reservations over halal integrity of products imported
specifically from non-Muslim countries, such as raw meat **imports** from Australia and Brazil.
This issue is not exclusive to the UAE, as other Muslim majority countries, such as Malaysia,

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3 have similar regulatory standards and consequent consumer concerns (Toong *et al.*, 2015).
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5 Worldwide, halal certifiers are so numerous that the UAE authorities could not logistically
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7 accredit them all and given that only those that have been approved can be used to export
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9 products to the UAE, the consequence is that many products cannot be imported from non-
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11 approved certifiers.
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14 *PI.* The country of origin of halal products affects consumer choice and confidence in
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16 halal supply chain integrity.
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21 **4.2. Consumer trust in government regulation of the halal industry**

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23 There is a dichotomy in consumers accepting that all food sold in the UAE is halal. For many
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25 purchasers, price and quality are key determinants of consumer choice and trust in the state to
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27 inspect and approve HFC bodies and thus ensure their food is halal. Internal food production
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29 systems in the UAE are universally acknowledged as shari'ah-compliant. Foreign food
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31 imports, on the other hand, rely on UAE authorities to act responsibly to ensure proper HFC
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33 standards are applied, though how effective their implementation of this is, remains
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35 contentious.
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40 Trust in state regulation is not universal and there is evident scepticism of halal integrity among
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42 UAE consumers. Variability of customers' perceptions exists and there is distrust among a
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44 minority of Muslim consumers that many imported products being sold cannot be routinely
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46 assumed to be halal. The study highlighted cultural diversity, with national origin of consumers
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48 significant and with such a diversity of expatriate inhabitants in UAE society and with a
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50 population comprised of around 80 percent expats from over 180 countries, food needs are
51
52 equally diverse. The extent of dietary acculturation (Ali *et al.*, 2017) in the UAE is very low,
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54 with many residents demanding importation of food-types from their homeland. Retail outlets
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56 in different regions of the UAE thus cater for the needs of different and distinct **nationalities**
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3 **and cultural** groups. Customer profile thus varies widely by locality; in some areas of the
4 UAE, up to 80 percent of retail food customers are Arab, whether local Emiratis or Arabs of
5 other nationalities, whereas in other districts, up to three-quarters of shoppers are Western
6 expats, **or residents of South Asian, African or Far Eastern heritage**. Inventory within
7 stores is therefore determined by variant geographic locations and the nature of demand.

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14 Within this milieu, the ethnographic data within the UAE setting **suggests** that non-Arab
15 Muslims were more concerned about halal integrity of meat products compared to Arab
16 Muslims. **In particular**, European, American **and South African** Muslims tended to have a
17 more detailed understanding of HFC through experience in their homelands, **living as minority**
18 **groups**, whereas **for other Muslims**, quality and price were the main determinants of purchase
19 **as opposed to** technicalities of HFC and consequent religious permissibility.

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29 P2. Consumer trust in state governance of halal supply chain regulation is affected by
30 consumer culture.

31 32 33 34 35 **4.3. Consumer confidence in halal branding**

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37 It was observed that the UAE, as with other Muslim majority countries, **is** perceived by some
38 as lacking stringency in halal regulations in an increasingly globalised marketplace. This
39 allows brands an opportunity to fill this void in perceived quality standard through branding
40 their products as authentically halal and trustworthy. Brand names, such as Al Islami, are
41 capitalising on this lack of trust in halal integrity and authenticity, in their branding strategies,
42 for example, branding products as 'The Real Halal'. The Al Islami brand image was conceived
43 around the ethos of trustworthiness of its halal food products, with halal encompassing all
44 aspects of the business. Founded in 1981, the company operated out of a slaughterhouse in a
45 small village in northern Denmark and exported to Dubai. It was initially called Coop Islami
46 due to its establishment as a cooperative society in conjunction with an Islamic bank but
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3 became Al Islami in 2006. Al Islami introduced processed meat products and cheeses
4 containing halal rennet and, in 1991, set up a factory in Jebel Ali Free Zone in Dubai to
5 manufacture and process **food** items. Al Islami was the company most often cited by customers
6 in the UAE with respect to halal food integrity and overtly marketing products as Islamic,
7 through **its use of** terminology such as 'halal' or 'Islamic'. Similar branding was becoming
8 successful in marketing campaigns in the UAE, with brand names such as Islami Company and
9 Islami Co-Op being used to emphasise product compatibility with Islamic dietary
10 requirements. Al Islami further enhanced its own reputation through developing state-of-the-
11 art research facilities to design and test new products at their Dubai headquarters and has
12 longstanding relationships with the government, indicating the value of their research at state
13 level in the area of halal food production.
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28 *P3. Products branded to emphasise halal supply chain integrity (particularly meat and*
29 *poultry related commodities) positively impacts consumer perception.*
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35 ***4.4. Consumer perceptions of brand replication and non-halal ingredients***

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37 Another area of consumer divergence of halal integrity is on issues pertaining to alcohol in
38 food and beverages. The production and consumption of alcoholic beverages or foods
39 containing alcohol are impermissible, or ***haram***, in any quantity or type in Islamic law (Fischer,
40 2008), though variant *fatawa*, or religious edicts pertaining to alcohol permissibility fully
41 absorbed into food, or alcohol of a chemical source rather than present through fermentation,
42 are observed. Alcohol as an ingredient is often used as a processing aid or concealed ingredient
43 (Ahmad *et al.*, 2015), for example, in pastry, to increase shelf life, or as a flavouring liquor in
44 chocolate confectionary (Shirazi, 2016). Concerns in this area also extends to selected soft
45 drinks, which are marketed in containers to resemble alcoholic drinks such as beer cans and
46 champagne bottles. Cultural sensitivity more so than religious teaching is relevant in this, in
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3 that although the beverage is in itself non-alcoholic, the bottle design is suggestive of alcoholic
4 beverages such as champagne or wine. Non-alcoholic beer products, **including brands** such
5 as Barbican, are also very popular in the GCC region. These can therefore cause disapproval
6 in terms of cultural sensibilities of faithful consumers. Ethnographic evidence of generational
7 divergence was also identified, with **male** consumers under **the age of** twenty-five being the
8 target demographic for advertising campaigns for these products, whereas many Muslim
9 residents over this age group **articulating antagonism** to the availability of such **products**,
10 **citing** cultural **or** religious **misappropriation**.
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21 *P4.* Commodities branded to replicate non-halal products such as alcoholic beverages
22 negatively affect the perception of some Muslim consumers.
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28 **5. Discussion**

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30 **Overall, the findings suggest that the** UAE exhibits a well-developed halal ecosystem
31 proportionate to its geographic size and population. **However,** the halal landscape of the UAE
32 compared to other countries, is one of the most challenging for farm-to-fork halal integrity, due
33 to the diversity of its population and corresponding consumer demand for a wide variety of
34 food types. The UAE relies heavily on imported goods across all sectors including food,
35 **though is** increasing domestic food production, **reinforced through a rising presence of food**
36 re-processing plants **in** Jebel Ali Free Zone. Food sold in the UAE comprise approximately
37 80 percent imported products, with the remaining 20 percent locally sourced, such as dairy
38 products, poultry, eggs, seafood and fresh vegetables. **For** locally processed food manufacture,
39 for example snack foods, nearly all source ingredients are imported. The federal government
40 has invested over \$1.5 billion towards the development of the food processing industry over
41 the past decade, focussing on a value-added food-manufacturing sector targeting local and re-
42 export markets. There are approximately 150 food-processing plants in the UAE, including
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3 those producing vegetable oils, soft drinks and juices, snack foods, pasta, confectionary and
4 dairy products. Dubai's food processing industry alone is valued at \$3 billion and grows up to
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6 11 percent annually (Government of Ras Al Khaimah, 2010).
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10 Key supply chain challenges in the halal food industry include interoperability, contamination
11 and product traceability. Furthermore, halal ingredient procurement has been highlighted as
12 being of vital importance in global halal supply chains, with widespread application of many
13 non-halal ingredients with the potential for offering halal alternatives for ingredients such as
14 gelatine, pepsin and carmine. All have either halal or vegetable-based alternatives and OIC
15 nations are actively growing their production capability, though even mainstream processed
16 food manufacturers have the capability to include Muslim market share into their consumer
17 base through the utilisation of non-pork, halal derivatives into their supply **chains**.
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21 Consumer demand for goods and services in the UAE is generally high and household spending
22 on grocery items exceeds most developed nations. The UAE halal meat industry in particular
23 is vibrant and has thus far proven resilient to environmental pressures, such as political and
24 economic fluctuations. According to the Ministry of Foreign Trade, halal meat import into the
25 UAE is very high, per capita three times greater than each of the following five largest
26 importers, with consumption overall eighteen times greater per capita than the global average
27 (Lukwaro, 2010). The demand for halal meat continues to grow due to rising population, with
28 many residents having **very high disposable incomes relative to global norms in developed**
29 **countries**. There is limited scope for increasing internal halal meat production capability,
30 which continues to present opportunities to foreign suppliers. The reliance on foreign
31 importation from such a wide array of countries of origin has a consequential impact on
32 consumer confidence in halal sourcing, particularly halal meat and poultry.
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36 The following **four** propositions were suggested from the ethnographic and document data
37 analysed:
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3 P1. The country of origin of halal products affects consumer choice and confidence in
4 halal supply chain integrity, negatively for imports from Muslim minority countries and
5 positively from Muslim majority countries.
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10 **This proposition complements earlier research, which found positively for the reduction**
11 **of uncertainty over halal integrity among Muslim consumers (Bonne and Verbeke, 2008).**
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14 P2. Consumer trust in state governance of halal supply chain regulation is affected by
15 consumer culture, positively by Muslim consumers from Arab Muslim majority countries
16 including the UAE and negatively by Muslim consumers from Muslim minority countries,
17 especially the UK, South Africa and parts of South Asia and South East Asia.
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24 **This proposition is also supported through earlier research in the UAE (Rajagopal *et al.*,**
25 **2011) as well as in other settings. In Muslim minority countries, such as the UK or the**
26 **USA, halal food is not certified by governmental bodies, but by independent agencies.**
27 **Consumer views on halal integrity as well as the ethics of animal welfare in these**
28 **environments varies considerably (Farouk *et al.*, 2016). For example, in the halal**
29 **slaughter process, permissibility of electrical stunning of animals prior to slaughter**
30 **(Fuseini *et al.*, 2016), use of mechanical slaughter and verbally blessing the animal in**
31 **God's name by non-Muslim slaughter men, or an audio recording of this pronouncement**
32 **played through an electronic device, are just a few examples of the many contentious**
33 **issues. Alternate positions on such issues results in circumstances where meat products**
34 **certified halal by one agency would not be certified as such by another and thus be**
35 **considered impermissible by sections of the Muslim populous. Many social and technical**
36 **variations among the four dominant schools of *fiqh* (Randeree, 2013), or Islamic**
37 **jurisprudence, in regards to halal integrity were historically not encountered in Muslim**
38 **majority countries until different Muslim cultures and religious contexts interacted**
39 **through global trade (Lever and Fischer, 2018).**
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3 P3. Meat and poultry related products branded to emphasise halal supply chain integrity
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5 positively impacts consumer perception.
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8 **This proposition is further harmonised by the notion that halal integrity is seen by many**
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10 **consumers as a default guarantee of food safety and better quality, with earlier studies**
11 **demonstrating empirically the preference for halal food products, even by many non-**
12 **Muslim consumers, due to the positive reputation fostered by associated brands (Ayyub,**
13 **2015). Earlier research also indicates a positive relationship between religion and**
14 **consumer attitude in the context of food purchasing and consumption (Bonne *et al.*, 2007).**
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22 P4. Commodities branded to replicate non-halal products such as alcoholic beverages
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24 negatively affect the perception of some Muslim consumers.
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26 **Earlier research empirically supported this view and demonstrated that the effect of**
27 **religiosity has multidimensional facets, such as belief, practice, culture, tradition and**
28 **historical precedence and these can all impact consumer food choice and perception.**
29 **Thus, the intersection of perceived values, in this case between consumer products and**
30 **belief, have been termed ‘sensitive products’ and illustrate that where different levels of**
31 **religiosity and consumer behaviour intersect, perceptions can be negatively experienced,**
32 **as highlighted in Khraim *et al.* (2011) research in the Jordanian retail sector. Non-**
33 **alcoholic drinks in the guise of alcoholic beverages such as beers, wines and champagne,**
34 **are examples where these acuties in Muslim consumer behaviour interconnect.**
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49 **6. Conclusions**

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51 Although the halal food sector is one of the more advanced sectors of the Islamic economy,
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53 second only to Islamic finance, to achieve maturity, the halal sector requires strategic
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55 development. The most significant issue within the halal food sector, but applying more
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57 broadly across all sectors of the Islamic economy, is standardisation, where agreement and
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3 consensus on global HFC, production and distribution standards are hard to achieve and thus
4 far, elusive. This presents a substantial opportunity and there is evidence that ESMA and others
5 are collaborating more in extending regulatory frameworks, practice and conduct as well as
6 shari'ah standardisation with respect to issues around the breadth of Islamic scholarly
7 interpretations on permissibility of products and services in an effort to go beyond limited
8 national concerns and towards developing a truly global, standardised and trusted halal food
9 ecosystem.

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19 **This research paper is among limited contributions that address the dearth in scholarly**
20 **published work on the MENA region and wider Middle East with respect to halal food**
21 **ecosystems. Furthermore, the novelty of this research partially lies in the longitudinal**
22 **nature of its methodological framework, which lends itself to providing a mechanism to**
23 **broaden the stakeholder set across the food supply chain as well as to nuance variations**
24 **in the halal food ecosystem in the UAE over time.**

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33 **Evidence of this can be seen throughout each of the four key propositions arrived at over**
34 **this time. Consumer choice and confidence in halal supply chain integrity, for example,**
35 **has demonstrated gradual decline with greater product range, increasing food choice and**
36 **the consequent growing demands on global importation. Further, the country of origin**
37 **of halal products had limited consequence for consumers in the early years of the**
38 **investigation but has clearly emerged and evolved over more recent years, with**
39 **accumulative food options and the advent and later domination of hypermarkets.**
40 **Likewise, demographic change and the increasing expatriate population has impacted**
41 **consumer trust in state governance of halal supply chain regulation. Furthermore, meat**
42 **and poultry related products that are specifically branded as halal, were previously of**
43 **limited visibility, but have had increasing impact on consumer perception, whereas**
44 **previously, citizenry in particular had little concern for such branding given these**
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3 products were less diverse and predominantly sourced domestically. Finally, the
4 replication of non-halal products was previously not in existence in the UAE, whereas
5 globalisation and increasing cultural homogeneity has led to the emergence and growth
6 of this phenomenon.
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12 Consequently, this work has gone some way to addressing interoperability challenges and
13 supply chain intermediary difficulties, with emphasis on concerns over non-integrated
14 halal certification standards as well as consumer confidence irregularity in halal
15 standards, which impacts the global halal ecosystem.
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21 The implications of this study are crosscutting in managerial and societal contexts. From
22 a managerial perspective, the outcomes of this work demonstrate that international halal
23 markets and halal product supply chain systems in other Islamic economy sectors,
24 including halal pharmaceuticals and cosmetics, can benefit significantly, through a
25 deeper understanding of source ingredients and Muslim consumer perception analysis.
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28 In a societal context, these key areas also posit trends which should allow perceptive
29 stakeholders to identify and react to cultural variance across Muslim consumers over
30 time, as well as develop more positive and impactful brand strategies.
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36 Longer term, the implications of this research are that staying abreast of changing
37 demands among Muslim consumers requires continuous examination across the Islamic
38 economy. This can facilitate companies in benefitting from first mover advantage. For
39 example, in terms of halal food sourcing and consumption, Muslim consumers are
40 becoming progressively more environmentally astute, increasingly concerned over the
41 source of ingredients and evermore mindful of their personal health.
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47 Environmentally, this includes increasing conscientiousness of fair-trade practices,
48 environmentally-friendly sourcing, sustainability, recyclability and renewable and
49 biodegradable packaging.
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3 **Sourcing of products through more organic means, free from genetically modified**
4 **organisms and the avoidance of chemical fertilisers and pesticides are becoming of**
5 **greater relevance. Furthermore, protein sources such as grass-fed beef or chicken which**
6 **have not been treated with growth hormones, antibiotics or steroids and raised free-range**
7 **are also in the public conscience. Locally sourced products and the emergence of artisanal**
8 **foods, produced in limited batches through traditional techniques are yet to see**
9 **significant traction, but provides opportunities for the halal food sector also.**

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12 **In terms of personal health, global trends indicate marginal movement toward probiotic**
13 **antioxidants and gluten-free foods, a growing disapproval of products containing high**
14 **fructose corn syrup, greater interest in sugar-free foods, natural foods, whole grain,**
15 **whole wheat products, superfoods and nutrient-dense foods that are being seen as**
16 **beneficial to health and possessing disease prevention or remedy. There are clearly**
17 **opportunities in the halal space for growth of these emerging trends, as well as**
18 **implications for halal and mainstream collaboration in finding product solutions for**
19 **meeting correlating Muslim consumer needs.**

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