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INNOVATION IN A RELIGIOUS ENVIRONMENT: ESTABLISHING AN INTER-ORGANIZATIONAL NETWORK ORIENTED TO THE ISLAMIC MARKET

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ABSTRACT

Purpose: Understand the generation of innovation in a religious environment subject to the requirements of Islamic precepts. Brazil stands out in terms of its exports to the Middle East, particularly for items such as *Halal* chicken, produced according to Islamic precepts. For such business to be viable, an innovative network has emerged, with actors organizing their activities around religious precepts.
Originality/gap/relevance/implications: Management of business product and processes is preponderantly oriented towards efficiency and productivity (e.g. cost reduction). Notwithstanding, they must comply to additional demands in supply networks where religion plays a major role.
Key methodological aspects: Documentary research, exploratory interviews with key respondents at the strategic level, non-participant observation of workplaces and production lines.
Summary of key results: Actors are linked to the network by a common goal, both economic and social, mobilized by institutionalized rules and religious principles in the network. Product and process changes are subject to compulsory religious rules, and no change may occur if not aligned to ancient practiced beliefs.
Key considerations/conclusions: Knowledge transfer and innovation are intertwined with religious rules, guiding product and process changes for both Muslim and non-Muslim network actors. New business approaches, however great their benefits in terms of productivity and conferring excellence, need the approval of religious leaders who interpret such innovation, judging the case for acceptance based on the precepts of the Qur'an, i.e. whether the practice is lawful or *Halal*.

KEYWORDS

Inter-organizational network. Religious knowledge transfer. Innovation in a religious environments. *Halal* food. Islamic market.

1 INTRODUCTION

In a globalized world, a multiplicity of public enterprises and businesses meet the needs of specific markets asa way to grow and increase profitability. Certain customers only accept products produced under strict, well defined conditions and are willing to pay more for them (Tieman, Vorst, & Ghazali, 2012). This phenomenonis relevant for consumers of products that follow religious precepts. Notably, since 2001 one particular market has been gaining attention for its growing purchasing power, mainly due tothe increase of its population, i.e., *Halal* products, targeted at Muslims. This customer base, not restricted to, but focused mainly on the Middle East, has clear demands and expectations, based on religious precepts (Pew Research, 2011). In this case, the precepts concern compulsory compliance with the demands of the Qur'an in terms of production and distribution throughout the network. A network of companies, such as Perdigão and Sadia (modern BRFoods), has been engaged in strategic innovation, fulfilling such precepts and exploiting a niche market since the 1970s. Structuring a network with credibility and efficiency has been a long process, one which has culminated in the elevation of Brazil to the status of the largest exporter of chicken meat in the world, with around 50% of the volume being products with certifications that guarantee their adequacy in following Islamic precepts (Associação Brasileira de Proteína Animal [Abpa], 2014).

Thus, anational network specialized in manufacturing and exporting *Halal* chicken was developed, *Halal* being the term for everything considered permissible according to the precepts of the Qur'an, the book of Sacred Scriptures of Muslims. The Qur'an provides standards of conduct forlife in general, also applied to the sphere of business, from clothes to make-up and food, with a series of interwoven values (Hassan & Bojei, 2011). Morality is a feature of the Muslim community (Patai, 2002), and Muslims care greatly about following the rules of their religion, giving them a clear preference for *Halal* products (Alam & Sayuti, 2011). Therefore, a company intending to operate in this niche market must be able to offer products that reliably follow certain rules which have been applied for hundreds of years, interpreted for a postindustrial era.

There has been a worldwide expansion of the *Halal* market (Lada, Tanakinjal, & Amin, 2009), supported by the advance of Islamic countries in recent decades (Ger, 2013). The population of these countries will reach 2.2 billion people in 2030 (Wardeen & van Dalen, 2013). In addition, the network of *Halal* producers plans to build on the image of *Halal* products to generate understanding among non-Muslim consumers of their superior quality in terms of following stringent standards of hygiene and food safety (Zainalabidin, Golnaz, & Mad, 2011), which

thus led to the conquest of Islamic markets (Ayyub, Rana, Bagi, & Al-Thomaly, 2013; Lever & Miele, 2012); one example of such a market for Brazilian exporters of *Halal* chicken is Japan.

Brazil is a country that stands out in the trade of *Halal* products, especially to the Middle East, which was the destination of about 1.4 million tons of product in 2013 (Abpa, 2014). To makethis business possible, an innovative network emerged, organizing the activities of producers, packers, logistics providers, ministries (e.g., Agriculture, Livestock and Food Supply), government agencies (e.g., the National Agency for the Promotion of Exports and Investments [Apex]), Chamber of Commerce, Islamic centers, certifying officers, and associations (e.g., the Brazilian Association of Animal Protein [Abpa], formerly the Brazilian Poultry Union). These actors, in exercising their powers, must not infringe any Islamic precepts inproducing and selling *Halal* food. If an actor does not comply, the entire network is undermined.

For *Halal* products, there is a process of transferring and sharing expertise of a religious nature between organizations (Cambra-Fierro, Florin, Perez, & Whitelock, 2011), as well as a governance structure based on values and beliefs that intervenes directly in the network (Fang, Yang, & Hsu, 2013). There is a peculiar environment of sharing, including both tacit elements (social) and explicit (legislative measures), reflected in the management and networking strategies, and offering a competitive advantage (Wilson & Liu, 2011) through differentiating *Halal* products (Rajagopal, Ramanan, Visvanathan, & Satapathy, 2011).

While establishing a network with these characteristics has been an incremental innovation that has taken decades, the incorporation of innovations – mainly processes – rests on an important proviso concerning religion. Any new practice or input, regardless of the potential benefits in terms of excellence and productivity, must be approved before its adoption by Islamic agents. It is the religious leaders who play this role in innovation, establishing a jurisprudence that will determine acceptance or not of the practice for *Halal* products. Such acceptance is not always unanimous (e.g., Shia and Sunnis have different views on how to interpret the Qur'an), and is often discussed in international forums after a long exchange of information and opinions among the various actors (Ismaeel & Blaim, 2012).

Given this environment, the primary goal of the research is to understand the generation of innovation in an institutionally more rigid environment resulting from the requirements of Islamic precepts. The motivation for the research is the issue raised by Silva, Feitosa and Aguiar (2012) that networks are structures of inclusion or exclusion, here viewed from a religious perspective. For the authors, cooperation with network actors has been necessary in various respects, such as the empirical verification of the cultural and social situation.

The secondary objectives of the research are to: 1. characterize the Brazilian network of exporters of *Halal* chicken; 2. assess the relationships between the actors in the network in creating an isomorphic environment; 3. monitor interactions to assess the exchange of knowledge, in particular religious knowledge; 4. consider how innovation operates in a network in which religious beliefs intervene in the adoption of new methods and technologies.

2 LITERATURE REVIEW

2.1 LOCUS OF KNOWLEDGE IN INTER-ORGANIZATIONAL NETWORKS: ISOMORPHIC ENVIRONMENT

Inter-organizational networks constitute a subtype of social networks (Silva, Feitosa, & Aguiar, 2012). Powell (1987) points out the necessity of obtaining knowledge (know-how) from cooperating organizations, an important function of the network of contacts. The inclusion of companies in networks brings economic benefits when relationships are underpinned by shared knowledge (Fleury & Fleury, 2005). Strategies for obtaining knowledge in network environments can be generated both by learning via network partners and joint development on the part of the actors (Carneiro da Cunha, Passador, & Passador, 2007). An actor acquires knowledge when embeddedin an inter-organizational network by the mere fact of being present in it. Besides the rational process of knowledge sharing, the organization shares narratives, myths, and metaphors (Nahapiet & Ghoshal, 1998), especially tacit knowledge – difficult to transfer, acquired throughthe personal experience of the individual, and hidden from the external observer, as noted by Nonaka and Takeuchi (1995).

Inter-organizational networks are environments that facilitate information flows (Huggins, Johnston, & Thompson, 2012), forming a *locus* of knowledge involving the transfer of specific values, the extrapolation of behaviors, and the creation of private communication within the network group (Kogut & Zander, 1992). This creates an environment that is isomorphic (DiMaggio & Powell, 1983), in which organizations mimic and replicate their routines in the social network environment (Ordanini, Rubera, & Defillippi, 2008). There are interwoven social values, social skills, mindsets, and ways of thinking, and acting. This repetition of behavior leads to specialization in certain activities, which generates knowledge and specific expertise inthe network environment. Knowledge-sharing phenomena arise, such as: spillovers (e.g., Owen-Smith & Powell, 2004), arise when an organization generates innovations that run over to the other actors

in the network, and spinoffs (e.g., Chesbrough & Rosenbloom, 2002), when a company emerges as a result of acquired knowledge and experience of its employees in other parts of the network, so that new companies arise at the locus of knowledge.

2.2 TRANSMISSION OF KNOWLEDGE IN INTER-ORGANIZATIONAL NETWORKS

Nonaka and Takeuchi (1995) proposed a framework for knowledge translation and transfer, employing a typology of tacit and explicit knowledge, and proposing four modes of knowledge conversion:

- *Socialization*: a process of sharing experiences, technical skills, and mental models, which occurs through observation, imitation, practice, and personal experience.
- *Externalization*: process in which tacit knowledge is articulated in explicit concepts through metaphors, analogies, concepts, and models of assumptions.
- *Combination*: a process that combines, adds, and characterizes knowledge through documents, creating explicit concepts that aremodeled and organized.
- *Internalization*: a process of learning in practice, by internalizing explicit knowledge as tacit, with the firm doing for itself what has been understood at an abstract level.

Even considering the importance of this framework and the existing studies of inter-organizational networks (e.g., Ahmadjian, 2004), this approach may not contain all the necessary features for the analysis of specific situations, such as networks interwoven with religious precepts. In such environments, it is conducive to separate religious knowledge from other forms of knowledge when considering an inter-organizational network of Islamic market orientation. As in the framework proposed by Carneiro da Cunha, Macau, and Alssabak (2013), knowledge is supported by religious beliefs and it legitimizes the practices of inter-organizational networks. For example, Muslims may prefer the slaughter of animals by those who are also Muslims in terms of reputation and religious knowledge (Bonne & Verbeke, 2008). This distinctionis based on the assumptions of Barsalou, Barbey, Simmons, and Santos (2005), who divide knowledge into the religious and the mundane. For these authors, religious knowledge is that contained in values and morals, obtained through spiritual belief and experience; in contrast, worldly knowledge is linked to an individual's experiences,

such as the categories and components related to a particular object. From this, it can be understood that there are the following intersections between the following types of knowledge (as shown in Chart 1):

- *Procedural and technical*: formal and explicit knowledge, encoded as everyday language.
- *Socio-cultural*: social knowledge that individuals have through their experiences, pointing to rules that are not necessarily considered praiseworthy or morally correct.
- *Speeches and applied techniques*: knowledge based on formal rules of religion (Bible, Qur'an, etc.) and that are seen clearly in routines, through explicit activities, such as rituals or manner of conduct.
- *Transcendental values*: knowledge related to specific values of religion that is obtained through individual experiences and following religious guidelines in everyday life.

Chart 1

INTERSECTIONS BETWEEN THE TYPES OF KNOWLEDGE

TYPE OF KNOWLEDGE	MUNDANE	RELIGIOUS
Explicit	Procedural and technical	Speeches and applied techniques
Tacit	Socio-cultural	Transcendental values

Source: Elaborated by the authors.

2.3 THE NETWORK ENVIRONMENT OF KNOWLEDGE SHARING

When there are existing relations between organizations for a long period, the exchange of knowledge is encouraged (Kogut & Zander, 1992) as the climate favors the emergence of trust (Fukuyama, 1988), shared culture (Melo & Froes, 2002), and the exchange of requests (Krogh, Ichijo, & Nonaka, 2000) between the organizations. Trust generates effects that enhance the exchange of knowledge, such as cooperation (Gulati, 1995), which serve as signals of and cornerstones for the conduits and relationships between organizations, even when these are not formalized (Bourdieu, 1985; Bowles & Gintis, 2002). Cooperation is stimulated when there is an interest in transferring at least part of available information and subsequently knowledge (Miranda & Saes, 2011). Thus, an environment in which there are social exchanges strengthens the exchange of knowledge by offering support for still greater sharing.

This environment, conducive to the exchange of knowledge, emerges with the existence of rules that encourage proximity and communication between companies (Carneiro da Cunha, Passador, & Passador, 2007), stimulating the commitment of the actors not only based on strict economic interests, but also on the interests of the collective (Leana & Buren, 1999). Thus, these organizations are open to teaching and learning (Adams & Lamont, 2003), making it easier for such organizations, rather than others, to gain access to one another's knowledge, with less fear of adverse outcomes resulting from this knowledge sharing (Hippel, 2005).

With regard to inter-organizational *Halal* networks, there is a need for specific knowledge of the Islamic market, mediated by interactions among Muslims and non-Muslims, so that the network can cater to religious precepts and the demands of the Islamic market (Souza, Alssabak, Carneiro da Cunha, & Macau, 2014). As the objective of this network is the production and delivery of *Halal* products, the challenge is to ensure that the actors respect and follow the requirements in terms of *Halal* quality all the way to the final consumer (Tieman *et al.*, 2012); that is, the production process not only depends on specific actions, such as at the time of slaughter, but also care in production from the handling of raw materials to the delivery of the product to the final customer. For example, downstream in the supply chain, a *Halal* product must not have contact with other products during transportation or storage as this can lead to contamination. Equally, incoming raw material cannot be accepted if it has been contaminated by non-*Halal* products.

The way in which the specific activities are conducted to ensure the credibility of the *Halal* product comprises specialized knowledge. There is know-how and expertise involved, with knowledge-intensive activities aimed at providing religious guarantees, as well as the application of cognitive standards and shared knowledge to ensure that all the Islamic rules are complied with. Established standards, some of which are explicit and others implicit (depending on interpretation), require specific knowledge concerning how to follow them. It is necessary to ensure that the importer understands that the products received are *Halal* and how such products must be treated so that the Muslim consumers face no problems. Thus, it is imperative that all share these religious rules and ensure that they are met at all stages of the supply chain. In this context, it is understandable that shared knowledge leads to an isomorphic environment, in which the actors relate to and carry out activities to the standards required. There is isomorphism that is driven by religious standards, as non-compliance with the rules at any point invalidates the entire production and distribution process. Knowledge is best transmitted when individuals – at least broadly – share the same institutional structure, such as religion (Marrocu, Paci, & Usai, 2011), but this may not be so simple in the case of *Halal*-specific export networks (such as Brazil) as not every participant is a practicing Muslim.

2.4 INTER-ORGANIZATIONAL NETWORKS FOR RELIGIOUS INNOVATION

Innovation is a benefit and an essential factor in inter-organizational networks. Thus, the study of such networks is necessary to understand how the innovative process spreads among them (Silva *et al.*, 2012). Innovation means creating knowledge that can be classified as extreme, if it is disruptive to that already existing, or incremental if it complements existing knowledge (Christensen, 2000; Rogers, 1995). Innovation is not invention (Berthon, Hulbert, & Pitt, 1999), but rather the creation and sharing of knowledge, redefining both intra- and inter-organizational problems and solutions (Takeuchi, 2013). The basis for the consolidation of innovation is the creation and dissemination of knowledge in the form of licenses, copyright, industrial and intellectual property, know-how, and equivalents (Jayaram, Oke, & Prajogo, 2014). The essence of innovation lies in knowledge and learning, and there is a vast body of literature on the topic, especially based on the Schumpeterian vision (Lazzarotti, Dalfovo, & Hoffmann, 2011).

Innovation relates to technological change (not restricted to information and communication systems) as an engine for economic development, which can be manifest through marketing, organizational innovation, and product and process innovation (Chart 2). In all of these, innovative expertise adds value to the product (Takeuchi, 2013). Innovation is not only an economic mechanism, or a technical process. It is primarily a social phenomenon in which the motivation and participation of the actors involved are instrumental in the dissemination of knowledge (Szczepańska-Woszczyna, 2014).

CHART 2

MAIN TYPES OF INNOVATION

TYPOLOGY OF INNOVATION	RESULTS	AUTHOR(S)
Market	New solutions to the problems of the buyer	Cesaroni and Piccaluga (2013) Mount and Garcia-Martinez (2014)
Organizational	Creation and implementation of new ideas by the organization	Chandler and Wieland (2010)
Process	Introduction of new systematic actions aimed at attaining superior performance	Damanpour and Aravind (2012)

(continue)

Chart 2 (Conclusion)

MAIN TYPES OF INNOVATION

TYPOLOGY OF INNOVATION	RESULTS	AUTHOR(S)
Product	Introduction of new products and services on the market	Damanpour and Aravind (2012)

Source: Elaborated by the authors.

In networks in which religion is embedded in the activities of production, storage, distribution, and marketing (Carneiro da Cunha *et al.*, 2013), barriers to innovation can emerge, such as:

- *Lack of commitment*: doubts as to the success of innovation, and of the contradictions between the formal rules (governance) and network practices can generate disinterest and a lack of involvement in the development of innovation (Souza & Bruno-Faria, 2013).
- *Inability to engage in integration and cooperation*: difficulties in joint action (in some cases between competitors) denote a lack of confidence, which undermines the development of innovation (Leković, 2013).
- *Interference of exogenous factors*: external aspects, beyond the control of the developers of innovation, can affect the birth and diffusion of new practices (Story, Daniels, Zolkiewski, & Dainty, 2014).
- *Technical incompetence*: technical knowledge and people skills are essential to the innovation process; indeed, the lack of them makes the creation and diffusion of innovation almost impossible (Nečadová & Scholleová, 2011).

On the other hand, as noted by Miranda and Saes (2011), shared common beliefs among parties makes the practice of the transfer of information natural; thus, it is important to gain a better understanding of phenomena related to knowledge transfer.

3 METHODOLOGICAL PROCEDURES

This research aims to understand the generation of innovation in an environment that is institutionally more rigid than others as a result of the requirements of Islamic precepts. The unit of analysis concerns the phenomenon of

innovation in religious contexts, specifically in the case of the network of Brazilian exporters of *Halal* chicken for the Middle East. It comprises qualitative research, undertaken through a case study examining the network in 2014, and employing the following methods:

- Exploratory interviews (see Chart 3), some in depth and undertaken on multiple occasions (e.g., President of the Chamber of Commerce), others brief and undertaken by telephone (e.g., the Ambassador of an importing country). The names of people and organizations have been omitted to ensure confidentiality for participants.
- Documentary research encompassing literature over the last 10 years, for example, 39 publications of the associations involved in the network.
- Non-participant observation of production lines and work environments.

3.1 EXPLORATORY INTERVIEWS AT THE STRATEGIC LEVEL AND DOCUMENTARY RESEARCH

The first search phase involved exploratory interviews with key actors in the Brazilian network of exporters of *Halal* chicken to the Middle East. The aim was to obtain formation concerning the knowledge transfer network in the given environment, capturing the aspects differentiating their environment from that of other traditional business networks without religion as a central object (Stebbins, 2001). We conducted an exploratory analysis, starting from the theoretical knowledge management field. Here we intended to confirm the existence of the traditional elements of the knowledge transfer environment and identify variables that could stimulate it.

To this end, key informants from 10 important network organizations were interviewed, yielding a total of 33 informants. The selection of organizations and their representatives for interview was based on accessibility, applying the *snowball* technique. Based on contact with a *gatekeeper* of influence in the network (Chamber of Commerce), we suggested and scheduled talks with Islamic centers, and representatives of the meat packing industry, associations, and the government. The actors cited other components featured in the network, reaffirming some of the names considered central, and expanding the possibilities for new contacts in the network.

CHART 3

PARTICIPANTS IN THE EMPIRICAL RESEARCH

ORGANIZATION	ACTORINTHE NETWORK	FUNCTION
A1	Chamber of Commerce	President Vice President
B1	Islamic Center	*Executive Director*
B2	Islamic Center	Religious Leader *International Relations Executive* *Halal* Industrial Manager *Halal* Research Director Production line supervisor 1 Production line supervisor 2 Production line supervisor 3 Production line supervisor 4
B3	Islamic Center	Religious Leader
B4	Islamic Center	Religious Leader
B5	Islamic Center	Religious Leader
B6	Islamic Center	President Founder Chemical engineer Production line supervisor 5 Production line supervisor 6 Production line supervisor 7 Production line supervisor 8 Production line supervisor 9 Production line supervisor 10 Production line supervisor 11 Production line supervisor 12
C1	Meat Packer	Production Unit Manager Agricultural Manager
D1	Association of Producers and Exporters	Director of Markets
E1	Government	Ambassador

Source: Elaborated by the authors.

In addition, we undertook documentary research, examining the institutional publications of participating organizations to understand their positioning and their "speeches" to the network. The data show institutionalized speech, in addition to complementing the information collected in the interviews. In both cases, we sought recurring patterns through content analysis conducted using transcripts of the interviews and documents. Content analysis was used to break up the text into units (*a posteriori* analytic categories), and for analog linking (relating of empirical evidence to theory) (Bardin, 2004). Thus, categorizations derived *a posteriori* from the empirical evidence provided an overview of the locus of knowledge between researchers and researched through the exploratory construction of reality.

3.2 CONFIRMATORY INTERVIEWS AT THE OPERATIONAL LEVEL

The second phase of the research involved 12 in-depth interviews with line managers, i.e., those connected directly with the operational process of slaughtering *Halal* chicken. The aim was to confirm the existence of the categories identified previously at the strategic level and check for the emergence of other categories at the operational level as knowledge exchanges occur on both levels. To capture the various elements of Islamic culture in the particular case, the discussions focused on the familiarity of the actors (including the authors of the research) with the Arab-Islamic universe to gain a shared understanding of reality. From a constructivist, interpretive perspective, we examined if the recurring patterns initially identified were the same as in the previous phase. When looking at the main points on the operational plane, it was apparent that they would have the same sense as for strategic-level respondents. We verified that the analytical categories identified in the field were related to those previously raised in the theoretical review. This was intended not only to ensure the validity of the evidence collected, but also to ascertain that the categories were relevant to understanding the locus of knowledge of the network.

3.3 OBSERVATION OF PRODUCTION LINES AND WORK ENVIRONMENTS

The third phase of the research involved observations in the natural environment, observing the social actors with the minimum possible interference by the researchers. We were on the production line as spectators (non-participant observers). For Lancaster (2005), the comments made during observation serve to capture subtle or hidden elements in the organizational reality. The author argues that thesecan be drawn from normal scenarios, i.e., the working envi-

ronment of individuals, without interference by the researcher in the preparation of the environment, or artificial, suitable when establishing experiments in an environment that should be controlled. The comments made in a natural environment, as applied in this research, are suitable for understanding social phenomena, even if this affords less opportunity to establish cause and effect relationships between the variables.

The observations were carried out in two productive plants, located in Amparo (SP) and Passo Fundo (RS), and operating within *Halal* regulations, with an average duration of six hours per visit. We observed the physical artifacts of the environments, installations, and interactions between Muslims and non-Muslims, both on the production line and in support facilities (meeting rooms, dining areas, living areas, Muslim prayer areas, specific spaces geared to Muslims, patios, etc.). The aim was to verify elements contained in these environments that signifiedthe exchange of knowledge between the actors in the network. We recorded the data in field notes, grouped following O'Toole and Were (2008) in descriptive (observed facts) and reflective (emotions captured) notes.

After collecting the observational data, we consolidated our field notes in a single pool of data. This comprised a field diary written in the first person plural, detailing the observation, and finally the data were analyzed according to the following steps:

- *Open coding*: establishing categories such as ritual factors, religious rules, religiosity, oriental culture, Western culture, faith, food, industrial process, cleaning, hygiene, blood, flesh, liability, money, export, storage, celebration of cultures and creativity.
- *Axial coding*: positioning the categories in relation to theory, and the topics of knowledge transfer, shared culture, concern, trust, cooperation, governance, commitment, knowledge creation, institutional environment, isomorphic environment, religious knowledge, and locus of knowledge.
- *Selective coding*: examining the interrelation between the topics that emerged from theory and the empirical evidence.

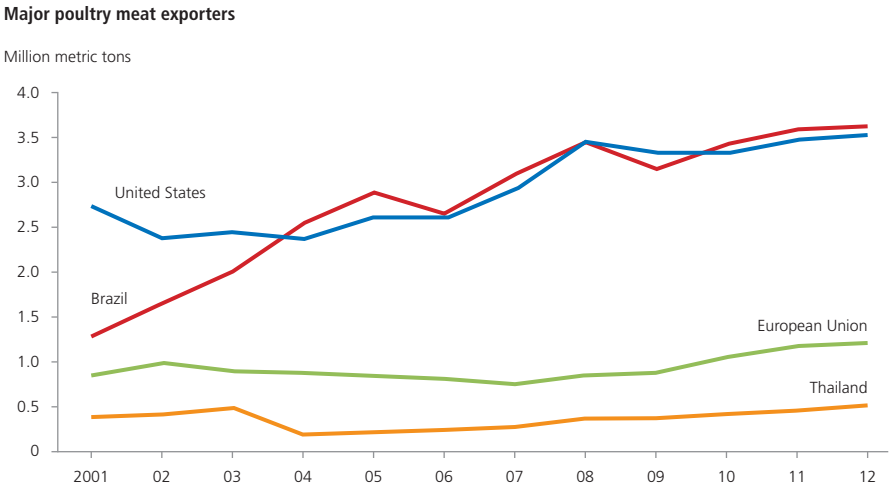
4 ANALYSIS OF THE RESULTS

4.1 NETWORK CHARACTERIZATION

Brazilian chicken exports have shown a considerable increase since the year 2001, a growth rate much higher than that of other major exporters, such as the United States, the European Union, and Thailand (Graph 1).

Graph 1

COMPARATIVE EVOLUTION OF BRAZILIAN EXPORTS OF CHICKEN



Source: United States Department Agriculture (2013).

The network of Brazilian exporters of *Halal* chicken is formed by a number of companies, operating at various points in the supply chain, from the supply of materials to the transportation of the final product to consumer countries. In this research, the focus is on a middlepart of the chain, formed by five prominent actors. A summary of the main existing relations between these actors, depicting the network studied, is presented in Chart 4. The main actors are as follows:

- Chambers of Commerce, responsible mainly for commercial relations, reconciling the interests of the organizations involved.
- Government (embassies), responsible mainly for political relations, reconciling the interests of the countries involved.
- Producers and exporters, mainly responsible for the slaughter, processing, and preparation of chicken, whole or in cuts, for transportation.
- Associations, responsible primarily for communication between companies that belong to the network, aligning and disseminating information.
- Islamic centers, responsible mainly for certification of compliance with the religious rules through out the entire chain.

CHART 4

KEY RELATIONSHIPS BETWEEN THE ACTORS IN THE NETWORK ACCESSED BY THE RESEARCH

	CHAMBERS OF COMMERCE	GOVERNMENT (EMBASSIES)	PRODUCERS AND EXPORTERS	ASSOCIATIONS	ISLAMIC CENTERS
Chambers of Commerce	-	-	-	-	-
Government (Embassies)	Organization of fairs and receiving authorities	-	-	-	-
Producers and Exporters	Product certification (e.g., certificate of origin)	None: connections are made through the associations	-	-	-
Associations	Organization of fairs and exhibitions abroad	Representation and discussion of the interests of producers	Representation of interests in national and international forums by the government	-	-
Islamic Centers	Legitimization of *Halal* certification	Realization of discussion forums and visits by religious authorities	Supervision of *Halal* certification of products	Information concerning the determinants and religious requirements of *Halal*	-

Source: Elaborated by the authors.

To characterize the network, we selected extracts from technical publications and information disseminated by the main entity representing the producers, distributors, and exporters: the ABPA. Abpa in its current form is the result of a series of mergers and realignments of earlier institutions, such as the Brazilian Poultry Union (União Brasileira de Aves – UBA), the Brazilian Association of Chicken Producers and Exporters (Associação Brasileira de Produtores e Exporta-

dores de Frangos – Abef), and the Brazilian industry Association of Producers and Exporters of Pork (Associação Brasileira da Indústria Produtora e Exportadora da Carne Suína – Abipecs). A first point of note in ABPA's publications is reference to the competitiveness of the country, pointing to Brazil's network as one of the most developed in the production of birds. This development has resulted from investments in technology, ensuring a safe, quality product, and a strong focus on sustainability (*União Brasileira de Avicultura*, 2012), as well as research and innovation (*União Brasileira de Avicultura*, 2012), with the result that:

> We have reached this level thanks to quality programs implemented in all links in the chain in recent years, with an emphasis on genetics, nutrition, management, biosafety, good manufacturing practices, traceability and animal welfare programs and preservation of the environment (UBA, 2008, p. 5).

The integration of the system through cooperation is pointed to as an important feature of the network, developed and consolidated by agribusiness:

> About 90% of the slaughtered poultry are produced in the system of vertical integration, where the company holds control of all links in the chain, i.e. production, slaughter and processing and distribution (UBA, 2008, p. 5).

> The model Synergic reconciled the productive efficiency of thousands of small poultry farmers and the huge ability to scale production and distribution of meat processors (Abef, 2001, p. 13).

Another factor is the almost 40-year relationship between the producers and the Middle Eastern market, which encourages confidence in the network. The institutional material of ABPA points out that the Brazilian producers:

> [...] have devoted enormous attention to the Middle East and Muslim countries, to deserve the confidence that consumers have placed in Brazilian chicken (ABPA, 2013a, p. 2, our translation).

> The significance of the Islamic market for Brazil goes beyond commercial relations if you take into account the unparalleled importance of a true partnership, built on foundations of lasting trust and mutual respect (ABPA, 2013b, p. 2, our translation).

These statements reinforce the notion of the emergence of confidence over time as a result of the gradual development of a shared culture and concern (Fukuyama, 1988; Melo & Froes, 2002; Krogh *et al.*, 2000). Thus, it is possible to observe a consistent network, with actions directed toward the production of *Halal*, and concern to secure the position of Brazil as a country with integrity in its respect for the rules of Islam for Muslim consumers.

4.2 RELATIONSHIP BETWEEN ACTORS IN THE CREATION OF AN ISOMORPHIC ENVIRONMENT

A network that is highly influenced by religious precepts, with respect for beliefs a necessary condition to attain market share, fosters an environment closely related to religious knowledge. At the strategic level, one can see:

> Sometimes a word, something wrong, something wrong, someone has misunderstood and not translated well, an inaccuracy can createa fissure in a good and stable relationship [...]. We have the responsibility of providing food for people, but the people here do not only talk about money, just business, we're talking about lives (D1 – Director of Markets).

It is possible to see the commitment beyond economic interests, with concern for the social collective (Leana & Buren, 1999). Thus, rules are implemented to encourage the exchange of knowledge, which serves as a backdrop for business focused on the Islamic market. There are standards of conduct that cherish the harmony of relations. This is evident in the speech of the religious and business leaders, repeated by the participants at the operational level. This favors an isomorphic environment, fostering patterns of trust and cooperation. Imitation and replication, in this case, refer to rules, customs, and habits. Although there is no requirement forall actors to be engaged in the Islamic faith, it is essential that they respect and share understanding of all aspects of Islam, as well as guaranteeing their compliance in all stages of the proceedings and through out the entire network. The uniformity of practices and knowledge is a requirement for the credibility and subsequent success of the network.

> We have a very good partnership with the supervisors, in a sense that everyone respects each other's culture. We respect their religion, they respect ours [...]. As an example, lunch and dinner are served in different places and prepared in different ways, to comply to specific preparation needs (C1 – Agro Export Company Manager).

It should be noted that the analytical category "common identity" was not found in the first round of interviews (strategic level), when the focus of the conversation was on activities related to the exchange of knowledge. The sense of collective identity was most evident in the interviews at the operational level, when a sense of belonging to the group of Muslims in foreign production lines was noted. Despite many participants not being Muslims, and thus not having *a priori* the same basis of commitment to the specific rules of *Halal* slaughter, key actors (e.g., managers) stimulate the creation of an environment in which knowledge and religious practices are shared, accepted, and disseminated. This extrapolation of values in behaviors (Kogut & Zander, 1992) encourages the creation of an isomorphic environment (DiMaggio & Powell, 1983), replicating routines in the social network environment (Ordanini *et al.*, 2008). We observed that the manager promotes activities that stimulate interaction between Muslims, who already sharethe same religious knowledge base, and non-Muslims, respecting individual beliefs while strengthening collective conduct guided by Islamic principles.

4.3 KNOWLEDGE TRANSFER

Here, we address the transfer of information, which embraces a broader sphere of knowledge transfer, not only procedural and technical, but also religious. This is clear in the remarks concerning one of the certifiers:

> The person who comes here has to go through procedures, which go through all the departments, such as the Religious Department, the Human Resources Department, he will go to our lawyer, following a procedure. In addition, an operating supervisor stated that: I can only go to the production line or allow someone to go when they're 100% [have completed all kinds of training] (B2 – *Halal* Industrial Manager).

Preparation for development involves sharing by the organization, both structured in the case of explicit knowledge (e.g., the study of formalized procedures in manuals) and tacit (e.g., monitoring of a bleeder and on-the-job training), and this is converted into the personal experience of the individual (Nonaka & Takeuchi, 1995) so that it can exercise its function properly. The exchange of knowledge involves explicit and tacit aspects between Muslims and non-Muslims as many of those involved with the operations of the network are non-Muslim but are prepared to be guided by Islamic principles. It was observed that there are guidance boards on meat-packing plants in Portuguese and Arabic, living environments are shared by Muslims and non-Muslims, and there are extra-company

social interactions between individuals of different religions. At the operational level, there was evident respect between religions, including the reception of Muslim individuals, enabling better dissemination of Islamic precepts in the environment. This represents respect for values and religious precepts, facilitating the dissemination of religious knowledge and understanding.

In addition, on the production lines, Islamic centers disseminate information concerning technical standards among managers of meat packers and production line employees (supervisors and bleeders), mainly related to the speed of the line. The implementation of this process is the responsibility of Muslims: lines are configured (parameterized) so that, for example, each bleeder cuts a bird and two pass live birds (the lines are automated). In other words, the processes are arranged in rows to maximize efficiency while following the religious rules derived from the Qur'an. There is therefore complementarity between technical knowledge and religious aspects. This is the favorable institutional environment for the exchange of knowledge recommended by Carneiro da Cunha & Passador (2007).

The empirical observational evidence reinforces the point made in the literature that the exchange of technical knowledge, with experience passing from one organization to another, affects the efficiency of the operational process in the recipient company. Social relations between organizations and religious bodies encourage the transfer of knowledge as the existence of networks with relationships based on respect for ethnic diversity produces an environment which drives the exchange of knowledge.

Respect for religious aspects produces an environment of concern, open to the sharing of knowledge. The dissemination of religious practices facilitates the transmission of technical knowledge. There is an institutional environment in which respect for (and immersion in) the "other" belief is established as a rule, and those who do not respect this rule contravene the conduct of the network. Respect for Muslims and non-Muslims among the Brazilians in this study had become an institutionalized code of conduct. This can be observed not only in the configuration of the network, but also in the support of political institutions. As the President of an Islamic Center put it:

> Today we have the government, the certifier and the camera, you don't have to do anymore. But if you want, we will. It's going to cost. But the seriousness of the attention paid to the *Halal* issue I think is one of the major reasons that IE won confidence. At first, people ask"Can we believe in a country that doesnot prepare meat according to Islamic precepts?" Yes, we're guaranteeing it. Because if I tell you that it is white, it is white, I won't send you anything beige (B6 – President of Islamic Center).

This means that there are efforts to encourage the production and development of the network, opening up greater space in the international market, and reinforcing the internal environment for the assimilation of cultural differences. The concern for the condition of the chickens at the moment of slaughter shows concern to maintain resources aligned with religious precepts. This can be observed in the slaughter lines, where the chickens are given an electric shock at controlled amperage to ensure they do not suffer before slaughter, as well as a bleeding (*Halal*) that frees up blood. The common wish to provide the animals with the same care creates elements of common identity among the participants, so they behave in the same way and accept the same standards. It is worth noting that the place of slaughter is an exercise environment, reproducing and transmitting religious knowledge in the collective interest. That is, it is accepted that religious values are a priority as the commitment of Muslims is to God, rather than to economics. As a leader of an Islamic Center (responsible for inspecting, enablingand monitoring the production process, and driving the *Halal* slaughter in meat packers) pointed out:

> It's a commitment that I have with God, okay? The job I am doing here is work that I am doing for God, okay? There are millions of Muslims around the world who eat these products from Brazil today, and I have to give an endorsement, an opinion (B1 – Executive Director).

We observed interaction between a number of actors aimed at the common goal of exporting *Halal* chicken, with religious aspects strongly influencing the interactions between organizations and people. The analytical categories for worldly and religious knowledge, supported by the assumptions of Barsalou *et al.* (2005), were identified in the theory and in the field (Chart 5). We confirmed the presence of four forms of knowledge, immersed in the practices of the network of exporters of *Halal* chickens:

- *Procedural and technical*: formal knowledge, from items listed in hygiene checks on the lines to the development of action plans to ensure that no item is overlooked by employees of the operation.
- *Speeches and applied techniques*: techniques of production and industrial analysis transmitted to line managers to assess compliance and best practices in processing *Halal* food.
- *Socio-cultural*: actions to ensure the cultural control of the quality of *Halal* production. For example, there is the dedication of one day solely for *Halal* production to avoid contact with pork and the segregation of production to avoid contact with derivatives of products prohibited for consumption by Muslims.

- *Transcendental values*: to ensure compliance with Islamic rules in the process of slaughter, the religious bodies disseminate knowledge of the Qur'an among non-Muslims and reinforce the requirement for compliance with religion for Muslims at the operational level (e.g., Muslim bleeders working on production lines). Such values also ensure the reliability and the lawfulness of the chicken production by generating a social obligation between the meat packersand Islamic centers in relation to the steps of the production process.

Chart 5

ANALYTICAL CATEGORIES VIS-À-VIS EMPIRICAL EVIDENCE

ANALYTICAL CATEGORY	RECURRING EVENTS OR ACTIONS	THEORY	1ST PHASE	2ND PHASE	3RD PHASE
Mundane knowledge	Technical knowledge concerning slaughter; management of knowledge of production and distribution; training.	x	x	x	x
Religious knowledge	Issues addressed by Islamic centers or sheiks; spiritual preparation; control of the supervisor and the Islamic Center; coexistence of non-Muslims with the Muslim religion.	x	x	x	x
Trust	Good faith that Islamic principles are being followed; distant partnerships; expectations about the activities of the partner.	x	x	x	x
Social interactions	Interaction of Muslims with non-Muslims; out-of-hours interaction; friendships.	x	x	x	x
Respect	Presence of sites geared to Muslims; permission to perform Islamic rites without differentiation or discrimination; requirements of the Muslim religion.	x	x	x	x
Solicitous	Muslims aiding newcomers; helping in the process of teaching and learning; being open to technical or religious questions.	x	x	x	x
Support from institutions	Interdependence of the network; support from the government agency; support from associations; support from certifiers.	x	x	x	N/O

(continue)

Chart 5 (Conclusion)

ANALYTICAL CATEGORIES VIS-À-VIS EMPIRICAL EVIDENCE

ANALYTICAL CATEGORY	RECURRING EVENTS OR ACTIONS	THEORY	1ST PHASE	2ND PHASE	3RD PHASE
Collective	Mutual aid; putting the collective above the individual in production; commitment in line with Islamic precepts, even if the interest of non-Muslimstends to concern business.	x	x	x	x
Common identity	Belonging to the group of Muslims; belonging to the network group.	x	N/O	x	x
Innovation in products/ processes	Learning processes that enable the enhancement of specific skills for innovation.	x	x	x	x
Barriers to innovation	Obstacles to innovation due to the rigid rules of the Qur'an.	x	N/O	N/O	N/O

Note: N/O = non-observed.

Source: Elaborated by the authors.

4.4 NETWORKING INNOVATION

Finally, a unique feature of the Brazilian network of exporters of *Halal* chicken is the rapid spread of technological innovations to hundreds of small and medium-sized producers, assisting and encouraging them to maintain rigorous standards of productivity and excellence (Brazilian Chicken, 2010a). According to ABPA, today Brazilian chicken is developed in less time, at higher quality, and with better flavor, thanks to a combination of advanced technology, genetics, and corn and soy inputs, all organized within an integrated system, ensuring a competitiveness that few competitors can match (*União Brasileira de Avicultura*, 2013).

> The Brazilian producer Park has modernized. Today, we have efficient genetic material for chicken production with high quality and high productivity, as well as prices that are extremely competitive in domestic and international markets. The Abef is always up to date in relation to new technologies, promoting the direct contact of its associates with the holders of these new techniques, capable of increasing production efficiency and assuring total quality (Abef, 2001, p. 18).

Brazilian companies have implemented a number of innovations. Evolution has come from substantial investments in R&D programs, including work focused on developing birds and cuts (e.g., size, weight, thickness, and format) adaptable to the niche markets of different consumer regions. There is collaboration between veterinarians, biotechnologists, geneticists, and microbiologists to produce varieties of chicken optimally under the climatic conditions and power availability of Brazil (Brazilian Chicken, 2008). Some examples are:

- Electronic incubators and hatchers (automatic nests), which enable closer control of the development of the bird and reduction in the use of labor (Abef, 2002; *União Brasileira de Avicultura*, 2012).
- Genetic technology for increased feed conversion of and meat yield to the birds, with a reduction in the days necessary to achieve the ideal weight for slaughter (UBA, 2007).
- Deadening equipment for the electronarcos is of the birds, with monitors for viewing the parameters of amperage, voltage, and frequency in slaughter houses (UBA, 2008).
- Closed, air-conditioned poultry houses, in which the temperature, humidity, and water and feed release are carried out by increasingly sophisticated controllers, which may even be accessed remotely via computers (*União Brasileira de Avicultura*, 2012).

Entry to the *Halal* chicken exporter network entail seven greater sophistication. Computerized control systems are used by certifiers, which generate daily monitoring tables detailing the type of cut, volume, location, and production procedures carried out at all stages of the slaughter. The system can be accessed by importers, the government, ports, and health authorities, ensuring full traceability of the load. Each lot has its own code, making it possible to establish the origin of the *Halal* chicken from Brazil at any point of marketing throughout the world (Brazilian Chicken, 2010b).

In addition, innovation by the network is subject to review by experts, sometimes in a community of practice of international reach. There is a sharing of common beliefs among the parties, with an intense transfer of information, as suggested in Miranda and Saes (2011). Referring to the leadership of Islamic centers (responsible for inspecting, enabling, and monitoring the production process, as well as driving the *Halal* slaughter in meat packers), the founder of an Islamic center commented on guidance: "It was written a few years ago when there weren't many technologies and there'd be no problem using technologies as long as they respect the *Halal* concept, you have to keep to the Islamic concept" (B6 – Founder).

Technological adjustments are made, for example, to the grinding machines forknives exclusively used for cutting on poultry production lines, to the mats, enabling greater output of blood from the body of the bird, and to precision instruments used to detect whether the production is in the direction of Mecca (Holy City for Muslims). A meat packing employee observed that on farms:

> We put more rows (to feed the birds on farms) [...] In Brazil, not in this company, but in Brazil externally, there are evaporative plates for cooling the air entering the aviary. In Brazil, in the beginning, when this technology was very expensive, we hada scheme with bricks that worked well too, so there are many things are just being settled in Brazil is just settling in and the country is very creative, so it ends up bearing lower costs for creating (C1– Farming).

This reinforces the dissemination of knowledge in the form of know-how, with the gradual consolidation of innovation by creating solutions (Jayaram *et al.*, 2014). The underlying process of *Halal* slaughter cannot be changed, but there is flexibility with acceptance of improvements and technologies that can improve efficiency and reduce costs, accepted by Islamic jurisprudence. In the network, for example, one of the managers mentioned the introduction of a new customized cut:

> We have specific cuts, for example, the griller is an invention for small electric grills [...] it was not like the 800 g, or the 900 g griller, which was a little heavier, the main product was the shauali [...], so there are grillers of 1kg and 200 g (A1 – President).

The network mobilizes to find ways to overcome the barriers to innovation in religious networks (Carneiro da Cunha *et al.*, 2013). New product development programs, respecting the precepts of the Qur'an are established:

> R&D programs seek to offer projects that meet most of the needs of agribusiness, making them suitable for different market segments in various regions of the world. Investment in R&D is a constant process and involves interdisciplinary collaboration between veterinarians, biotechnologists, geneticists, and microbiologists [...]. The goal is to obtain the best possible yield from the carcass, in particular for premium part (D1 – Director of Markets).

Thus, knowledge is generated in relation to product innovation. However, for product change to occur, processes also need to be modified. Process innovations

in production environments with compulsory religious rules, such as the *Halal* network, do occur, provided that there is no conflict with the interpretation of the ancient precepts of belief. Innovations happen in only processes through harmonization with religious requirements.

5 DISCUSSION

Management in environments that are under the strong influence of religious precepts is a challenge that, perhaps, goes beyond the concepts usually discussed in the management literature. Thus, this research makes a contribution to the literature and extendsthe studies of Bonne and Verbeke (2008) and Ger (2013). In particular, in this research, the object of study, the network, the object of study, has a business orientation distinct from traditional Brazilian poultry sector of Brazil as the importers, Muslim buyers, will only be willing to buy Brazilian chicken if their religious needs are fully met. The extra work involved in the monitoring and certification of each batch is rewarded by a differentiated remuneration. It demands the creation of specific knowledge, legitimized by religion, resulting in controlled innovationsin the industrial environment.

In meat packing units, adaptations have resulted in training and the transfer of experiences from Muslims to non-Muslims, corroborating Jayaram *et al.* (2014) findings concerning the reproduction of protocols, and managerialand social practices in the dissemination of knowledge in industrial environments. The creation of new products (R&D) has been verified empirically in the network, especially in the development of new cuts for the Islamic market, following the logic presented by Damanpour and Aravind (2012). The application of the innovation results in process improvement; such applications need validation – interpretative – often from a specific actor network (typically the Sheiks), leading to religious scrutiny of even simple tasks, as in the creation of a checklist for production control. The improvements to processes cannot contravene religious requirements, given that Islamic values are not considered mutable by practitioners.

It was verified that the perception of the members of the network is reliable and true to Islamic market buyers. This perception is the result of an institutional environment that forces organizations to mobilize to meet the same requirements of religious conformity. This homogenization of the network is stimulated by the standardization of requirements for the production of *Halal* chicken, derived from institutional pressures, as DiMaggio and Powell (1983) state occurs in an isomorphic environment.

Finally, the transfer of knowledge, both secular and religious, is not restricted to Muslim actors, but overflows to all participants regardless of personal belief.

All the actors involved should apply procedures and rules, codified or not, within a spiral of knowledge generation and dissemination, as in Nonaka and Takeuchi (1995), but particularly keeping at the center the religious issue.

6 FINAL CONSIDERATIONS

This paper has sought to understand the generation of innovation in an institutionally more rigid environment as a result of the requirements of Islamic precepts. Documentary research was undertaken and interviews were conducted with actors from various parts of the network (strategic and operational levels), as well as engaging in non-participant observation of the production lines of two meat packers (with the results submitted to an Islamic expert to reduce distortions in the interpretation). The results have allowed the characterization of the Brazilian network of exporters of *Halal* chicken, employing excerpts from the transcripts of interviews with some of the key players, and has provided an overview of the relationships between them (1st secondary objective). We observe that the actors are linked by a common goal of economic and social character, mobilized by standards of conduct and religious principles institutionalized in the network environment. The isomorphic environment is favored by respect and complies with the precepts and beliefs of the consumer market, formed primarily of Muslim majority countries (2nd secondary objective). The actors are interwoven in interactions that govern the transmission of knowledge, in particular religious knowledge, which has a strong influence on the production processes (3rd secondary objective). In relation to innovation, there is little flexibility for optimizing *Halal* production processes because the essence of religious slaughter cannot be changed. To circumvent restrictions and put itself ahead in technological terms, the network seeks alternatives, promoting constant discussion so that the strictness of the requirements does not compromise product innovation (4th secondary objective).

The main contribution of this research is its theoretical approach, combining the typology of Nonaka and Takeuchi (1995) with the religious perspective and worldly knowledge of Barsalou *et al.* (2005), applied to a network embedded in religious values. The joining of these proposals has resulted in a model incorporating four kinds of knowledge: procedural knowledge, technical and applied techniques, and socio-cultural and transcendental values. From the methodological point of view, the exploratory phase was intended to prevent researchers from limiting the field of study with predefined concepts about Islam. In practice, the research has allowed a better understanding of a network of businesses organized around the idea of *Halal* products, bringing together elements to create

an environment in which there is an exchange of knowledge, and catering to a particular consumer. In this network, the interweaving of Muslim values and culture is essential to win the respect and trust of consumers by guaranteeing the authenticity and integrity of the product.

Finally, for an inter-organizational network that operates under strong religious principles, it is important to have an isomorphic environment, in which the actors can act according to the faith and values presented. In the case that many participants are not Muslims, not having *a priori* the same commitment to Islamic requirements, it is up to the key actors (e.g., managers) to stimulate the creation of an environment in which knowledge and isomorphic religious practices are shared, accepted, and broadcasted, creating a particular expertise (in this case, Islamic knowledge). To this end, managers must promote respect, acceptance, and the implementation of relevant activities, facilitating interaction between Muslims, who already hold the religious knowledge, and non-Muslims.

This study is a cross-sectional study, which reflects the network at a particular point in time. As networks are not static, new studies accompanying their development over time can enrich the discussion of isomorphism, and the transfer of knowledge and innovation in these inter-organizational environments. Future studies could, for example, empirically examine institutional isomorphism empirically through surveys that have as their objective the identification of aspects that influence the process which guides organizations within networks exhibiting specific features, such as the strong presence of religious elements. Research could also delve into the coexistence of religious rules, as in the case of *Halal*, and innovation and sustainability practices in networks.

INOVAÇÃO EM AMBIENTES RELIGIOSOS: ESTABELECENDO UMA REDE INTERORGANIZACIONAL VOLTADA PARA O MERCADO ISLÂMICO

RESUMO

Objetivo: Compreender a geração de inovação num ambiente religioso, pautado pelos requerimentos do Islã. O Brasil destaca-se como grande exportador para os países do Oriente Médio, principalmente para itens como frangos *Halal*, produzidos de acordo com as regras religiosas muçulmanas. Para viabilidade dos negócios, uma rede de fornecimento diferenciada teve de surgir, com a organização dos atores em torno de normas religiosas.

Originalidade/lacuna/relevância/implicações: A gestão de produtos e processos é preponderantemente orientada visando a ganhos de eficiência e produtividade (por exemplo, redução de custos). No entanto, essa gestão precisa atender a requisitos adicionais numa rede de suprimentos em que a religião atua com um papel de destaque.
Principais aspectos metodológicos: Entrevistas exploratórias com respondentes-chave no nível estratégico, pesquisa documental e observação não participante das linhas de produção e locais de trabalho.
Síntese dos principais resultados: Os atores estão conectados na rede a um ganho comum, com aspectos econômicos e sociais, mobilizados por regras institucionais e princípios religiosos. Mudanças em produtos e processos dependem da aceitação por parte das entidades religiosas e não podem ocorrer sem um alinhamento prévio a crenças e práticas antigas.
Principais considerações/conclusões: A transferência de conhecimento e a inovação estão entrelaçadas com as regras religiosas, guiando os atores da rede nas mudanças de produto e processo, tanto para muçulmanos quanto para não muçulmanos. Novas formas de produzir, por maiores que sejam os ganhos de produtividade e acréscimo de excelência, dependem do aval de líderes religiosos que interpretam a inovação aos olhos do Alcorão, ou seja, se estão de acordo com a lei islâmica.

PALAVRAS-CHAVE

Redes interorganizacionais. Transferência de conhecimento religioso. Inovação em ambientes religiosos. Alimentos *Halal*. Mercados islâmicos.

INNOVACIÓN EN ENTORNOS RELIGIOSOS: ESTABLECIMIENTO DE UNA RED INTER-ORGANIZACIONAL DIRIGIDA A AL MERCADO ISLÁMICO

RESUMEN

Objetivo: Comprender la generación de innovación en un ambiente religioso, guiada por las exigencias del Islam. Brasil se destaca como un importante exportador a los países del Oriente Medio, principalmente para productos tales como pollos *Halal*, producidos de acuerdo con las normas religiosas musulmanas.

Para la viabilidad empresarial una red de oferta diferenciada tuvo que producirse, con la organización de los actores en torno a las normas religiosas.
Originalidad/laguna/relevancia/implicaciones: La gestión de productos y procesos es predominantemente orientada apuntando ganancias en eficiencia y productividad (por ejemplo, reducción de costes). Sin embargo, esta gestión debe cumplir los requisitos adicionales en una red de suministros donde la religión actúa con un papel destacado.
Principales aspectos metodológicos: Entrevistas exploratorias con los encuestados claves en el plano estratégico, investigación documental y observación no participante de las líneas de producción y lugares de trabajo.
Síntesis de los principales resultados: Los actores están conectados en la red a una ganancia común, con los aspectos económicos y sociales, movilizados por las normas institucionales y por principios religiosos. Los cambios en los productos y procesos, dependen de la aceptación por parte de los organismos religiosos, y no puede ocurrir sin una alineación previa de viejas creencias y antiguas prácticas.
Principales consideraciones/conclusiones: La transferencia del conocimiento y la innovación se entrelazan con las reglas religiosas, guiando a los actores de la red en cambios en el producto y el proceso, tanto para los musulmanes como para los no musulmanes. Nuevas formas de producir, a pesar de grandes aumentos en la productividad y el aumento de la excelencia, dependen de la aprobación de líderes religiosos que interpretan la innovación según las normas del Corán, es decir, si están en conformidad con la ley islámica.

PALABRAS CLAVE

Redes inter-organizacionales. Transferencia de conocimientos religiosos. Innovación en entornos religiosos. Alimentos *Halal*. Mercados islámicos.

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