Towards Understanding Diffusion Barriers and Drivers to Organizational Adoption of Innovative Food Safety Management System in Armenia: a Qualitative Analysis

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by

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ABSTRACT

Purpose- The core focus of this study was to develop an in-depth understanding of the perceived barriers and drivers associated with the diffusion and adoption of an innovative food safety management system in the food processing organizations of Armenia.

Background- Safe and nutritious food is necessary for health, growth, development, and function over the life course. Poor food safety practices represent a significant public health issue in Armenia. They are also the main cause of restricted opportunities for food producers to export. In 2014, food safety spending accounted for the largest portion of the agricultural budget in Armenia for shifting the existing food safety paradigm towards internationally accepted requirements. Based on the Law on Food Safety as a legal framework, HACCP based food safety management system development and consumer protection enhancement have been also listed in the national strategy of Sustainable Agricultural Development for 2010-2020.

Design- A multi-site, cross-sectional descriptive research design with a qualitative approach has been employed to provide a deeper understanding of the factors impacting the diffusion and adoption of HACCP based food safety management system. The study employed multiple methods of data collection based on site visits by means of individual face-to-face in-depth interviews, focus group discussions, participant observations, field notes and internal organizational document analysis regarding HACCP based system adoption. An interview guide with open-ended questions was carried out to facilitate individual and focus group interviews and to cover all relevant topics under the study.

Setting and sampling- Potential participants as key decision makers were recruited from multiple sources throughout Armenia including top managers from food processing organizations belonging to the dairy industry, policy makers from governmental authorities and specialists from industry non-governmental organizations conducting food safety improvement programs that allowed having an information-rich, purposeful sample of food safety managers. Overall, data from primary sources comprised 20 in-depth individual interviews and focus group discussions with 23 informants conducted during February 2015 to May 2015.

Data analysis- The data was analyzed applying the method of qualitative directed content analysis to identify pertinent themes highlighted by food specialists in presenting the adoption of HACCP system in their organizations. For identifying the meanings and patterns behind the main interorganisational ties in diffusion, the study also implemented qualitative interorganizational network analysis. Using Roger's framework and the Institutional theory consistent with study aims allowed developing a conceptual / thematic description of determinants that acted as barriers and drivers in the adoption process of HACCP based system. For facilitating qualitative and network data analysis, ATLAS-ti7 and UCINET 6 software programs were used.

Main findings- There was general consensus among participants concerning to the adoption of HACCP system which was viewed to be beneficial to the food processing organizations and the food system in general. Most descriptions of HACCP system among participants had a positive undertone. Positive attitudes of most executive managers, their commitment and support have been identified as driving forces to HACCP adoption. However, negative attitudes of organizational staff, a misunderstanding, an attribute gap, a sense of

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disenchantment inherent among late adopters impeded the adoption process. Participants rarely mentioned that the adoption of HACCP had also an intention to improve public health. Almost all participants noted that the institutionalization of a new value system towards advanced food safety management approaches in their organizations was a critical driving force for contributing to the efficient adoption process. A number of perceived promoting factors concerning to HACCP system have been reported by participants such as traceability, enhanced organizational image, sustainability, satisfaction, convenience and reinvention that fostered the adoption of HACCP system. Meanwhile, perceived barriers such as high initial costs, time-consuming and laborious process, compatibility, complexity, lower rate of cost recovery and invisibility were mentioned impeding the adoption. The mass media is far from playing a necessary role in the change process and it was criticized. The informal interpersonal communication is the most powerful way of diffusion. Free access to guidelines and manuals was viewed as facilitating factors relative to HACCP adoption, while remoteness for organizations found in regions was reported as a barrier. External trainings conducted by appropriate organizations and informal impersonal communication were identified as driving forces. Meanwhile, lack of internal trainings served as a barrier in increasing awareness among organizational staff. Attributes including lack of operationalization plan, written forms of responsibilities and lack of excess financial, human and time resources served as barriers. The interorganizational network included the analysis of knowledge and information flows. Formal diffusion for organizations found near city was a driver while the poor dissemination across regional food processing organizations and poor competitive pressure were found to be constrains. External factors such as low awareness of consumers and lack of shared vision in the industry represented as barriers. Respondents mostly reported that the stimulus for adopting HACCP came from increasing exporting opportunities and ensuring legal compliance with the Food Safety Law. The study showed that food processing organizations are more vulnerable to coercive forces that played an instrumental role in adopting HACCP system into the food industry of Armenia. Other forces including high environmental uncertainty and ongoing professionalization also had a vital role in the process of adoption.

Conclusion- This study sought to provide a comprehensive understanding of the perceived determinants inherent in the ongoing organization-wide diffusion and adoption of HACCP system. The study provided a constellation of five main themes with a structured matrix of barriers and drivers including perceived attributes of HACCP based food safety management system, communication channels, organizations, interorganizational network and the external environment. Rogers' diffusion of innovation theory and the Institutional theory were found to be well suited for exploring determinants to understand organizational adoption behavior in the context of HACCP adoption. The promotion of HACCP diffusion and adoption processes in food processing organizations remains instrumental for enhancing the quality and efficiency of the food system in Armenia. This study revealed that micro, small and medium sized companies should overcome more barriers for adopting HACCP system compared to large sized companies. Despite the difficulties gains in protecting public health, decreased recalls of food products and enhanced opportunities for exporting are fundamental justifications for HACCP adoption in the food industry of Armenia.

Keywords- *Food safety, HACCP, food processing organizations, public health, diffusion of innovation, institutional theory, qualitative methods, interorganizational network, Armenia*

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LIST OF ACRONYMS AND ABBREVIATIONS

CAC	Codex Alimentarius Commission
CDC	Centers for Disease Control and Prevention (of the USA)
CCP	Critical control points
DOI	Diffusion of Innovation
EU	European Union
FAO	Food and Agriculture Organization (of the United Nations)
FBD	Foodborne diseases
FERG	Foodborne Disease Burden Epidemiology Reference Group
FPO	Food processing organizations
FSMS	Food safety management systems
GHP	Good Hygienic Practice
GMP	Good Manufacturing Practice
GOST	Gosudarstvennyy standart
IOM	U.S. Institute of Medicine
MoA	Ministry of Agriculture (of the Republic of Armenia)
NGO	Non-governmental organization
HACCP	Hazard Analysis and Critical Control Points
SPS	Sanitary and Phytosanitary
WB	World Bank
WHA	World Health Assembly
WHO	World Health Organization
WTO	World Trade Organization
All abbreviations that have been used in this study are listed here unless the abbreviation is well known (e.g. NHS), or it has been used only once, or it is a non-standard abbreviation used only in figures / tables / appendices, in which case the abbreviation is defined in the figure legend or in the notes at the end of the table	

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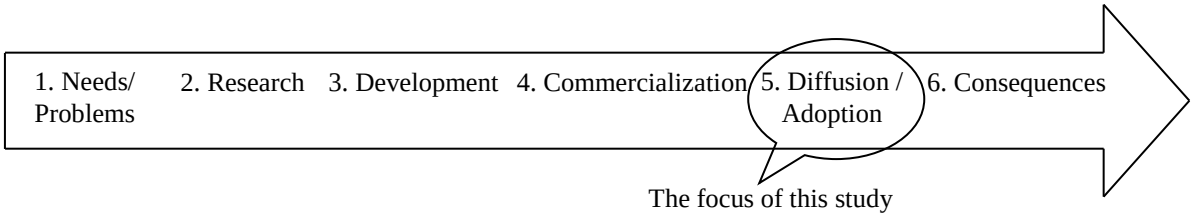
SECTION ONE: INTRODUCTION

1.1 Study Aim and Research Questions

The core focus of this qualitative descriptive study was to develop an in-depth understanding of the perceived barriers and drivers associated with the diffusion and adoption of an innovative food safety management system in the food processing organizations of Armenia (Table 1). Grounded in Diffusion of Innovations (DOI) theory and the Institutional theory, the study sought systematically to demonstrate the qualitative analysis of determinants that impacted on the diffusion and adoption of the Hazard Analysis Critical Control Point based food safety management system (HACCP FSMS) as an innovation in food processing organizations (FPO) for food safety improvement and which factors organizations took into account while making organizational adoption decisions for applying certain innovation (Figure 1).

Figure 1: Study Scope in the Innovation Development Process (Rogers, 2003, page 137)



The principal research questions guiding this qualitative descriptive investigation are:

RQ1. What factors influence the diffusion and adoption of an innovative food safety management system in the food processing organizations of Armenia?

RQ2. How the identified factors impact the diffusion and adoption of an innovative food safety management system in the food processing organizations of Armenia?

1.2 Rational and Significance of Study

A thorough understanding of the potential determinants that support or hinder the diffusion and adoption of innovation is necessary to enhance its implementation effectiveness for further success and to try to avoid the adoption failures in the future (Rogers, 2003).

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Existing literature has indicated that limited qualitative research has been applied for exploring determinants that impacted on the adoption of food safety management systems (FSMS) and highlighted the need for conducting in-depth qualitative studies (Luning et al., 2015; Taylor & Taylor, 2004; Wilcock, Ball, & Fajumo, 2011). The literature has also emphasized the importance of identifying barriers and motives of FSMS adoption across countries and subsectors of the food industry (Fotopoulos, Kafetzopoulos, & Psomas, 2009).

The study contributes to the existing body of literature by extending prior research through using the lens of public health, innovation and institutionalization perspectives. The study undertook a more holistic view trying to fill the gaps in knowledge and provided a broader and integrated insight into the multiple dimensions of complex phenomenon. Building on the foundational works of Rogers (2003) and Dimaggio ans Powell (1983), the study focused on five vital dimensions of FSMS diffusion and adoption that included characteristics of innovation, organization, communication channels, interorganizational network and external environment.

The Hazard Analysis Critical Control Point (HACCP) system has long been applied throughout the world (Ropkins & Beck, 2000). As acknowledged and accepted approach for effective food safety assurance, the adoption of HACCP system into national public food safety regulations has become an international strategy promoted by such organizations as the World Health Organization (WHO), the Food and Agriculture Organization (FAO) of the United Nations and the World Trade Organization (WTO) (Motarjemi et al., 1996; Sperber, 2005). Unfortunately, HACCP adoption is often not straightforward and is commonly fraught with difficulties. Considering that the incorporation of new practices into food systems is usually slow and unpredictable process, the study makes a timely contribution to reveal what does and does not work in the HACCP FSMS diffusion and adoption among Armenian dairy FPO.

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SECTION TWO: CONCEPTUAL BACKGROUND / LITERATURE REVIEW

2.1. Food Safety as a Public Health Priority

Food safety is essential to human nutrition and quality of life (Chan, 2014). Safe and nutritious food is necessary for health, growth, development, and function over the life course (German, 2008). Access to safe food and adequate nutrition was established as a basic human right by the WHO and FAO in the 1992 World Declaration on Nutrition (FAO & WHO, 1992). Moreover, human health protection through ensuring food safety is currently listed among WHO's 10 public health priorities as an integrated part of Health 2020 framework (WHO, 2013a).

In societies around the world, the public expect a safe and wholesome food supply (Chassy, 2010). Nonetheless, incidents involving unsafe and unwholesome food reported by local and global media reveal that this expectation is often unmet. The alarming frequency, a wide range and magnitude of recent breakdowns have highlighted the vulnerability of the global FSMS (van de Brug et al., 2014). Unfortunately, appropriate measures for strengthening FSMS become usually stricter after posing potential threats to public health (Jespersen & Huffman, 2014). As a result, food safety scandals challenge consumers making their choice of food products bewildering (Akhtar, Sarker, & Hossain, 2012).

To circumvent food safety challenges inherent in food systems, the WHO has placed increased emphasis on principles of food safety and wholesome nutrition in the last two decades (WHO, 2013b). Especially the adopted resolutions WHA53.15 and WHA63.3 on food safety urge Member States to carry out advanced measures for strengthening national food safety systems and decreasing adverse health effects caused by food borne diseases (FBD) (WHO, 2000, 2010). The WHO dedicated the 2015 Global Health Day to food safety to make a particular emphasis on global public health implications of unsafe food (WHO, 2015).

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2.1.1. Epidemiology of Foodborne Diseases

In excess of 200 recognized diseases occurring in humans can be spread through ingestion of contaminated food (Mead et al., 1999). Young children, pregnant women, the sick, and the elderly are the most vulnerable groups to FBD (Chan, 2014). According to a recent estimate, food was a common vehicle for the transmission of approximately 30% of all emerging infectious pathogens during past 60 years (Jones et al., 2008). However, the global morbidity and mortality rates due to FBD remain unrevealed (Havelaar et al., 2013). The WHO has commenced a relevant plan to extrapolate better estimates for FBD (WHO, 2006). Under this initiative, the Foodborne Disease Burden Epidemiology Reference Group (FERG) with six task forces was established in 2006 (Torgerson et al., 2014). Based on the WHO recommendation under FERG framework, the public health effects attributed to FBD are expressed through Disability-Adjusted Life Years (DALY) (WHO, 2006). The WHO will release its first report on global estimates of FBD in October 2015 (WHO, 2015).

People might be exposed to FBD through contaminated food by chemical, physical or microbiological agents (Newell et al., 2010). In many cases, affected people consider not to seek medical care thus enhancing the number of unreported cases to health authorities (Chan, 2014). At the same time it is difficult to diagnose FBD and identify causal relationships between dietary factors and pertinent diseases (Willett, 2013). Inadequate surveillance systems for detecting FBD are another challenge (Kuchenmüller et al., 2009). Several industrialized countries have conducted studies to establish the burden of FBD (Flint et al., 2005). As an example of well-established FBD rates reported in the US based on the 2011 estimates of the Centers for Disease Control and Prevention (CDC), FBD are a major cause of illness and mortality in the US population resulting an estimated 48 million illnesses (1 in 6 Americans), 128,000 hospitalizations and 3,000 deaths annually in total in case when the US food safety system is acknowledged to be the best in the world (CDC, 2011).

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2.2. Modern Food Safety Management Systems

The process of food safety improvements has gained growing attention around the world (WHO, 2015). While major changes towards the centralization of food production and the globalization of food trade benefit the consumers they also enhance the chances of food contamination and the internationalization of health risks (Tritscher et al., 2013). Rapidly expanding urbanization, population growth and widespread international trade are among global drivers that have led many countries to strengthen their national food safety management systems (Luning et al., 2008). Other important factors that trigger the necessity for changes in food safety management practices are emerging new pathogens, demographic changes due to ageing population and changes in consumption patterns (Newell et al., 2010; Tauxe et al., 2010).

Being characterized by reactive, end-product focused approach with unstructured risk analysis in which the government bears the main responsibility, traditional food safety management systems are increasingly becoming ineffective (FAO & WHO, 2005). The prevalence of a robust FSMS in food processing companies is sine qua non for safer food provision and better public health protection (IOM, 2009). In addition, improved food safety is considered to be a public good in local and global levels (Jaffee, 2005). The ongoing pressure for strengthening FSMS along with accessible novel food safety control measures enhance the necessity to move away from traditional to modern systems to better protect the public health in societies and be able to compete in national and international markets (Jacxsens et al., 2009).

According to the US Institute of Medicine (IOM) science- and risk-based approaches should be the foundation of modern food safety management systems (Figure 8) (IOM, 2009). Such FSMS are characterized by proactive, process-control focused, farm-to-table approach with established priorities, structured risk analysis, shared responsibility and integrated food

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control (FAO & WHO, 2005). Moreover, when science- and risk-based FSMS are transparent, cost-effective, minimally disruptive to international trade, national food laws and standards are outcome oriented, it enables more efficiency and strengthens public health protection (IOM, 2009). The principles of such innovative FSMS are greatly integrated with the principles of evidence-based public health system as they serve as a means for protecting and improving health outcomes (WHO, 2014). It provides also economic protection especially for export countries through eliminating the barriers to stable international trade (Trienekens & Zuurbier, 2008).

2.2.1. HACCP as a Food Safety Management Tool

The HACCP system is an internationally acknowledged science-based approach to food safety management (Wallace, 2014). The aim of a HACCP system is to assure the early detection, evaluation and removal of biological, chemical, physical and allergenic hazards that protects the public health from FBD (Motarjemi, 2013). Based on resolution WHA 16.42 in 1963, the Codex Alimentarius Commission (CAC), or simply Codex, as the principal body of the WHO and FAO that develops health-based international food standards along with guidelines has promoted the adoption of HACCP system worldwide (CAC, 2009; FAO & WHO, 2014). Later, the establishment of the WTO in 1995 makes the HACCP system along with Sanitary and Phytosanitary Measures (WTO/SPS) the international requisite for national requirements in food safety. With the support of such organizations the widespread integration of HACCP system in FPO is a big part of strengthening national food safety management systems.

The HACCP concept was developed for food safety purposes in the early 1960s by the Pillsbury Company in collaboration with the National Aeronautics and Space Administration (NASA) and the US Army’s Natick Laboratories (Ross-Nazzal, 2007).

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Originally intended to produce the safest and highest quality food for astronauts during their space missions, the concept of HACCP has been later adopted and implemented in the food industry since 1971 (Wallace, Sperber, & Mortimore, 2011). The health of billions of consumers can be better protected through the HACCP adoption to eliminate the risks of food hazards (Albrecht & Nagy-Nero, 2009)

It is universally acknowledged that HACCP principles are pretty flexible to apply them to all sizes and types of food processing organizations in developed and developing countries (Wallace, 2014). The member states of the WHO and / or WTO need to adapt their national legislation in compliance with Codex Standards. The presence of good practices in FPO such as good hygienic practices (GHP) and good manufacturing practices (GMP) often referred to as HACCP prerequisites are the integral part of science-based approach and provide effective functioning of HACCP system (Mortimore & Warren, 2014; Raspor, 2008). It works based on 7 principles and 12 steps provided by Codex (Mortimore & Wallace, 2013).

Despite the growing interest worldwide in HACCP application the literature has also indicated that efficient adoption of HACCP system in FPO needs to be studied (Doménech, Escriche, & Martorell, 2008; Wallace, Holyoak, Powell, & Dykes, 2012). This is due the inherent barriers during HACCP adoption in FPO (Baş, Yüksel, & Çavuşoğlu, 2007; Milios et al., 2013; Panisello & Quantick, 2001; Taylor, 2001; Vela & Fernández, 2003). On the other hand, certifying for HACCP FSMS is not a guarantee yet that FPO will be provided with a desired organizational performance (Luning et al., 2009). The correct application along with continuous revisions and improvements of critical control points (CCP), staff trainings and capacity enhancement are vital for ensuring efficiently functioning HACCP system. Authors of many scientific articles developed and proposed strategies for measuring the effectiveness of HACCP functioning (Kafetzopoulos, Psomas, & Kafetzopoulos, 2013; Luning et al., 2008).

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2.3. Organizational Change and Innovation

Intensified global competition and global cooperation are driving forces requiring organizations to make continuous changes and quality improvements in their strategies and operations in pursuit of innovative solutions to compete, prosper, and survive (Kotter, 1996). The adoption of an innovation is a process of organizational change in an effort to maintain or improve the organizational performance (Damanpour, 1987). When the unit of an innovation adoption is a complex organization, the determinants impacting this process include both individual and organization characteristics (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004) (Roger, 2003, page 418). Organizational change in this study refers to a technological innovation which represents HACCP system.

According to the diffusion literature, at the organizational level innovation can be considered any new notion, practice, program, policy, etc. that does not necessarily have to be completely new rather than perceived as new for the implementing organization (Rogers, 2003). Diffusion of innovation in organizations refers to the process of implementing organizational change that can take place through either innovation generation or innovation adoption (Damanpour & Gopalakrishnan, 1998). Adoption refers to the decision of senior organizational managers to make use of an innovation by organizational members in their work (Rogers, 2003, page 177).

The implementation of HACCP system engenders changes not only in the existing food safety practices but also in the organization by itself. HACCP refers to the innovation adoption that can be a very long and challenging process until its complete adoption (Damanpour & Gopalakrishnan, 1998). Scholars argue that any innovation implies enhanced uncertainty and risks (Rosenbusch, Brinckmann, & Bausch, 2011). Rogers argues that the introduction of an innovation into organizations requires mutual adaptation to match each other well (Rogers, 2003).

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SECTION THREE: SIGNIFICANCE

3.2. Situation in Armenia

Poor food safety practices represent a significant public health issue in Armenia (IFC, 2013). They are also the main cause of restricted opportunities for food producers to export (FAO, 2012). Like all other Commonwealth of Independent States countries, Armenia also shares the legacy of the Soviet-era technical standards (GOST) and food safety practices that do not satisfy the health needs of the local population and international requirements accepted in market economies for export (Delcour & Wolczuk, 2013). For this reason, Armenian government has been engaged in food safety reform initiatives for improving the performance of poorly developed food safety system since 2006.

According to the World Bank's recent report, in 2014, food safety spending accounted for the largest portion of the agricultural budget in Armenia for shifting the existing food safety paradigm towards internationally accepted requirements (WB, 2014). In 2012, the Armenian Prime Minister Tigran Sargsyan expressed his vision related to food safety: "We mustn't allow dangerous food on our tables. There will be no compromises made for any reason in this regard" (Hetq, 2012). This vision has been involved in the national strategies and programs to match the safety of the foods to world-agreed standards. Based on the Law on Food Safety as a legal framework, HACCP based food safety management system development and consumer protection enhancement have been also listed in the national strategy of Sustainable Agricultural Development for 2010-2020 (FAO & MoA, 2015). The Food Safety and Action plan adopted in 2011 supports the overall agricultural development strategy to manage country's commitments to the WTO SPS Agreement in consonant with the EU legislative and institutional requirements on food safety. The successful implementation will reduce FBD ensuring improved public health as well as have a Deep and Comprehensive Free Trade Area (DCFTA) with the EU.

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Armenia is lower-middle income country (WB, 2012). It is a member country of many international organizations including FAO since 1993, Codex since 1994 and the WTO since 2003 (FAO & WHO, 2014; FAO, 2014; WTO, 2014). It is also a member country in EU Eastern Partnership since 2009. Engagement in mentioned organizations served as foundation for adopting new laws and regulations on food safety with the support of the international donor organizations such as USDA, FAO, IFC and the European Commission in order to implement Sanitary and Phytosanitary (SPS) reforms in compliance with the WTO Agreement and HACCP system in FPO. It greatly differs from the GOST system which is considered as bureaucratic, costly and overall obsolete to continue to work (Delcour & Wolczuk, 2013). For this reason, the country committed to responsibilities for implementing the Codex requirements as well as assist Partnership and Cooperation Agreements (PCA) and European Neighborhood Policy Action Plan (ENPAP) (EU, 2010).

The Armenian government amended the Law on Food Safety (Government Decree № 531-N/2007) in 2007 to tailor new requirements for food safety due to the Sanitary and Phytosanitary Agreement in the WTO countries (Ministry of Agriculture of the Republic of Armenia, 2006). The amended law has been developed based on the EU Food Law (178/2002/EC) known also as a General Food Law. It heralded the beginning of HACCP based system implementation to update food safety practices in food processing establishments. However, the Armenian Law has marked differences from the EU regulation because it lays great emphasis on providing the quality of the products while safety issues should be stringently stressed as well (Ristic, 2010). The establishment of a State Service for Food Safety as a single authority unifying previous agencies in 2010 is another major accomplishment in meeting EU requirements. Like many countries, accurate estimates for FBD are poorly developed in Armenia as well due to the absence of monitoring, appropriate surveillance, and infection control.

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SECTION FOUR: THEORETICAL FRAMEWORKS

4.1. Roger's Diffusion of Innovations Theory

Roger's classical diffusion research theory represented a comprehensive guiding paradigm to explore the phenomenon under the study (Rogers, 2003). The motivation for considering this framework as applicable to this study is due to many reasons. First, the theory has a well-established framework that has been applied to thousands of studies to explore different innovations. Second, the theory is applicable at individual / organizational levels providing a problem-solving approach in helping to problem identification and solution specification (Coreil, 2010). Third, the theory is grounded in sociology that considers social and cultural contexts providing a broader focus. Fourth, HACCP based FSMS as an innovation is occurring throughout the Armenian society which is why the application of diffusion theory and research are found appropriate to utilize under the study. Rogers argued that the diffusion of innovations was a common process and could be applied to all fields that come up with innovations. Fifth, the theory is a potentially useful model to understand the dynamic and contingent nature of HACCP adoption into the food system that is a complex adaptive system. Sixth, Rogers' attributes are presented in the context of barriers and drivers that impact the organization's degree of readiness to adopting an innovation (Kapoor, Dwivedi, & Williams, 2014).

The DOI framework has emphasized the process of communication in shifting from the traditional to the modernization paradigm in developing countries (Melkote, 2006). The idea of diffusion was first introduced in 1903, while the diffusion of innovations paradigm was established almost 70 years ago in the US by rural sociologists in the field of agriculture. It is a theory of social and cultural change through which individuals talking to others spread the subjectively perceived information in a social system (Rogers, 2003, page 18). The paradigm has its roots in anthropology and sociology while during 1960s, it spread to other

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research areas entailing public health, economics, communication, marketing and political science based on the diffusion model advanced by a rural sociologist Everett M. Rogers in 1962 (Singhal, 2012; Valente & Rogers, 1995). Such applications to different innovations of varied fields have opened up a whole new efficient dissemination options for adoption enhancing the understanding how social change occurs and why some innovations are adopted while others are never adopted (Dearing, 2009) (Greenhalgh et al., 2004).

The theoretical framework consists of four distinct elements represent the innovation, communication channels, time and a social system (Figure 6). Drawing on communication research, all four elements were used to understand how the diffusion of new ideas or practices occurs over time through communication networks among the members of a system (Rogers, 2003).

4.1.1. Perceptions of the Innovation

In the diffusion paradigm, an innovation is characterized by five defining attributes that are relative advantage, compatibility, complexity, trialability and observability (Emerson, 2011). These perceived characteristics of an innovation describe 49 to 87% of the variance in explaining adoption decisions (Rogers, 2003). Depending on how individuals perceive these attributes ether positive or negative predict the rate of adoption. In case of positive perception, innovations have higher relative advantage, compatibility, simplicity, trialability, and observability which serve as drivers for diffusion process which can result in a speedy rate of adoption. Otherwise, they become barriers to innovation (Table 3).

Relative advantage of an innovation can be expressed through narrow economic terms including initial costs and economic profitability (Bessant & Tidd, 2007). It can also be expressed through non-economic factors entailing convenience, satisfaction and enhanced social prestige or other benefit terms (Bessant & Tidd, 2007).

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Compatibility is the next important attribute of an innovation showing how well the innovation is perceived as consistent with organizational and individual values, norms and needs (Rogers, 2003). Value compatibility and practical compatibility are two distinct aspects of compatibility (Bunker, Kautz, & Nguyen, 2006). Value compatibility refers to the extent of how well the innovation fits with the norms and values of the potential adopters (Bunker et al., 2006). While practical compatibility refers to the extent of how the innovation matches with the current skills, practices, equipment and performance in the organization (Bunker et al., 2006) (Bessant & Tidd, 2007).

Complexity deals with the degree of difficulty of understanding and using an innovation as perceived by adopters (Rogers, 2003). Complexity can be looked at from two dimensions that are the structural complexity of the system and the complexity of the technical knowledge (Kapoor et al., 2014).

Observability is the degree to which the results of an innovation adopted can be obviously observed by potential adopters (Rogers, 2003). This characteristic was later split into result demonstrability and visibility (Moore & Benbasat, 1991). The former refers to the extent of demonstrating the benefits for user after an innovation adopted (Moore & Benbasat, 1991). The latter refers to the extent of sharing those demonstrations with other potential adopters (Moore & Benbasat, 1991).

4.1.2. Communication channels

Communication channels represent the second element in DOI through which information about an innovation is disseminated from one adopter to another (Rogers, 2003, page 18). There are three types of communication channels that represent mass media, interpersonal and interactive channels (Rogers, 2003, page 198). Rogers emphasizes the importance of looking also communication sources of origin that can be either cosmopolite or

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localite (Rogers, 2003, page 204). Moreover, while mass media channels are mostly cosmopolite, interpersonal channels of communication can be either local or cosmopolite (Rogers, 2003, page 208).

In interpersonal and interactive channels, the degree of communication between adopters may depend on their perception of how similar or homophilous they are in certain attributes such as age, gender, education, socioeconomic status, etc. (Rogers, 2003, page 19). People tend to communicate with others who they perceive as similar to them in certain characteristics. People often get new information through weak ties system that in diffusion process play great role through which different segments of a network could be connected and accessed to novel information (Granovetter, 1973). They are also the cause of structural holes in the network (Burt, 1992, 2005). In this study the diffusion happens at the macro level including the entire food system (Granovetter, 1973).

The network of channels together developed among organizations represent is called a diffusion network. The network of organizations may promote the adoption of HACCP system. Organizations found on the “borders” of a network have higher probabilities to miss novel information hindering them to move to the next stage.

4.1.3. Time

According to the diffusion theory, the process of diffusion usually requires a long time and the adoption of an innovation does not necessarily take place instantly after an organization first learns about it (Valente, 2010, page 175). Time plays an instrumental role in three different aspects of DOI that are innovation-decision process, organizational innovation process, and the overall adoption rate among organizations.

The first process is the innovation-decision process for an individual or other unit of adoption who go through five thoughtful decision-making stages (Figure 3). It consists of

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gaining knowledge of a potential innovation, being persuaded to form a favorable or unfavorable attitude toward the innovation, making a decision for an adoption or rejection of an innovation, implementing an innovation by trying the new practice and eventually confirming it that occurs when an individual makes a decision to use it (Schoenwald, McHugh, & Barlow, 2012).

The second process is the organizational innovation process that as Rogers argues is similar in a fashion to the innovation-decision process but is more complex in nature (Figure 2). Rogers suggested that the organizational innovation process can be divided into five broad stages of agenda-setting, matching, redefining / restructuring, clarifying and routinizing. The first two processes together account for an initiation stage and the last three process implementation stage. The processes refer to all activities necessary for dovetailing the innovation into the organization needs, making it widespread and ultimately routinizing an innovation in an organization.

The third process in innovation diffusion is the rate of adoption. According to the theory, like for any innovation, the rate of adoption over a period of time is expected to have a predictable S-shaped curve pattern (Rogers, 2003). It is different for each innovation and represents the cumulative number of adopters. The adoption curve during the early stages begins with low paces then accelerates as more adopters appear and end up with slow rate when the rate approaches to complete adoption (Figure 4) (Macdonald, 2002, page 202). Rogers argues that after 15 to 20 % adopted an innovation, the process will go on by its own (Rogers, 2003).

Individuals do not adopt at the same time based on their degree of innovativeness or willingness to adopt. The adopters are categorized into five subgroups that are innovators (2.5%), early adopters (13.5%), early majority (17 to 50%), late majority (51 to 84%), and

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laggards (85 to100%) (Figure 5) (Oldenburg & Glanz, 2008). The first adopters would therefore belong to the categories of innovators or early adopters.

According to Roger, organizational innovativeness is mainly characterized by structural determinants including company size, centralization, complexity, formalization, slack resources and interconnectedness (Damanpour, 1991; Greenhalgh, Robert, Bate, Macfarlane, & Kyriakidou, 2005; Rogers, 2003). Nonstructural determinants entail the attitude of a leader towards change, human resource management, organization openness (Greenhalgh et al., 2004; Rogers, 2003).

Organizational values and practices represent the organizational culture (Bunker et al., 2006). Robbins and Judge presented a set of key characteristics that in aggregate explain organizational culture (Robbins & Judge, 2013). The characteristics represent innovation and risk taking, attention to detail, outcome orientation, people orientation, team orientation, aggressiveness and stability (Robbins & Judge, 2013). Organizational practices are tangible manifestations of the organizational culture that are characterized by six dimensions; process-oriented versus results-oriented, employee oriented versus job oriented, parochial versus professional, open systems versus closed systems, loose versus tight control, normative versus pragmatic organizations (Hofstede, Hofstede, & Minkov, 2010).

4.1.4. Social system

The role of social networks among potential adopters of innovations has been also highlighted in the diffusion framework (Rogers, 2003). It represents a set of interrelated units collaborating in an effort to achieve a common goal (Rogers, 2003). At an organizational level, participants represent their organizations thus forming an interorganizational network. According to the diffusion researchers, the structure of interorganisational networks and the channels of communication through which potential adopters learn about innovations

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influence the diffusion and adoption processes (Rogers, 2003, page 24). Other important aspects include the effect of existing norms, the role of opinion leaders and change agents, types of innovation-decisions, and the consequences of innovation adoption (Rogers, 2003, page 24). The introduction of innovations into interorganizational networks, somewhat like an epidemic spreading, can result the diffusion through these networks connecting organizations (Sorenson, Rivkin, & Fleming, 2006).

In the food processing organizations, adoption decisions are usually subject to the approval at the administrative level while actions related to implementation depend on members representing the lower levels of an organization. A potential adopter (chooser) is a person or a group of individuals in food processing companies who decides to focus the resources of an organization to implement an innovation (Dearing, 2009). While in such complex organizations, an implementer (user) is a person or group of individuals who will in fact perform necessary behavior to ensure the effective implementation of an innovation (Dearing, 2009).

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4.2. Institutional Theory

4.2.1. External Environment

The study applied the institutional theory developed by Dimaggio and Powell as the DOI mainly focuses on society and individuals while FPO are not functioning in a vacuum rather than they are subjected to different influences as well leading to structural and behavioral changes (Figure 7). Besides, the theory helped to understand better the issues of legitimacy, coercive, mimetic and normative pressures with the HACCP adoption within the social system domain of Roger's framework. According to the institutional theory, legitimacy within larger environments of the organizations is vital for their performance and survival (Tolbert & Zucker, 1996). For this purpose, organizations respond to institutional forces of the external environment including institutional agencies such as governmental authorities, interest groups such as suppliers and the general public, members of an industry that trigger changes in organizational structure and practices (Dimaggio & Powell, 1983; Greenwood & Hinings, 1996).

Coercive, mimetic and normative pressures influence the interorganizational diffusion of institutional isomorphism to make organizational changes in structure and behavior (Dimaggio & Powell, 1983). Coercive pressures are usually imposed by the governmental authorities and the general public (Zucker, 1987). This is due to in part by the dependence on the mentioned organizations for resources (Pfeffer & Salancik, 2003). Mimetic pressures can result from environmental uncertainty and ambiguous goals when organizational leaders may replicate the experience of similar organizations that they perceive as successful (Dimaggio & Powell, 1983). Finally, normative pressures are present due to the professionalization when members of an industry receive similar trainings and then communicate them to other organizations gradually forming shared institutionalized norms and values on an innovation and coming to the consensus for adoption (Mizruchi & Fein, 1999).

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SECTION FIVE: METHODS

5.1. Study Design and Approach

A multi-site, cross-sectional descriptive research design with a qualitative approach has been employed to provide a deeper understanding of the factors impacting the diffusion and adoption of HACCP based food safety management system. A qualitative approach was employed for facilitating the exploration of complex phenomena and permitting for detailed depiction of adopter experiences (Curry, Nembhard, & Bradley, 2009; Sofaer, 1999). According to the diffusion research, there is a need for utilizing ethnographic methods such as in depth interviews and observation as ethnographic methods in the organizational innovation studies (Rogers, Singhal, & Quinlan, 2009). The procedures for data collection involve face-to-face in-depth individual interviews and focus group discussions complimented by fieldwork notes. The study approach is deductive in nature as Roger's framework is used. The intent of such a study design was to capture narratives describing the points of view of participants who represent different organizations. They shared their perceptions about the HACCP system adoption providing an in-depth information and rich description.

5.2 Study Setting and Sample

Potential participants as key decision makers were recruited from multiple sources throughout Armenia including top managers from food processing organizations belonging to the dairy industry, policy makers from governmental authorities and specialists from industry non-governmental organizations conducting food safety improvement programs that allowed having an information-rich, purposeful sample of food safety managers. The choice of food processing organizations was guided by three selection criteria. The food processing companies had production licenses from the Ministry of Agriculture. Second, they represent

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the field of dairy production required to implement HACCP based food safety management system by law. Finally, organizations involved in the food industry represent different regions of Armenia that were independently operating and profit-seeking entities. The categorization of organizations was done according to the recommendation of European Commission (Table 2) (European Commission, 2003)

The choice of participants for obtaining rich narratives was guided by five selection criteria. Eligible participants from FPO were owners, production managers or supervisors of the food quality / safety management departments. Respondents from governmental and nongovernmental organizations represented food safety managers. They were qualified and / or experienced in the field of food safety in relation to the phenomenon under study from a variety of backgrounds to ensure the diversity of experiences. Participants were adults aged 18 and higher who reside in Armenia and proficient in spoken Armenian. Participant recruitment was continued until thematic saturation was reached (Guest, Bunce, & Johnson, 2006; Sandelowski, 1995).

5.3. Interview Guide Development

An interview guide with open-ended questions was carried out to facilitate individual and focus group interviews and to cover all relevant topics under the study (Appendix 4,5). The overall structure of the six-part interview guide was designed based on Roger's DOI paradigm. Some of the questions were derived from preexisting interview guides in prior research and other questions were developed to cover all areas of interest. Derived questions were adapted to the study context through slightly changing wordings of questions present in the original source (FSAI, 2001; Schiffer, 2007; Subramanian & Nilakanta, 1996; E. A. Taylor & Taylor, 2004). The original version of an interview guide was prepared in English and then translated into Armenian. It was conducted a pre-interview with food safety

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professionals who did not take part in the study to pretest prior to data collection. An interview guide was subjected to some modifications for improving the overall clarity and understanding. The final version was comprised of a series of non-leading questions along with prompts and it targeted the following areas of interest: 1) Participant and organization characteristics, 2) Innovation characteristics, 3) Organization characteristics, 4) Communication channels, 5) Social system and 6) External environment.

5.4. Study Procedure

The study received protocol approval from the Institutional Review Board at AUA to conduct individual in-depth interviews and focus group discussions. Initial recruitment of participants was achieved through purposeful sampling using contacts known to the authors (Boeije, 2009; Marshall, 1996). Purposeful sampling was utilized as it was efficient when data review along with analysis occur with data collection. Potential informants were contacted through letters, emails or phone conversations to invite them to take part either in a face-to-face interview or a focus-group discussion. In order to achieve an Armenia-wide sample, further recruitment was achieved using snowball sampling based on the recommendations of initial participants (Marshall, 1996). Student investigator then contacted potential candidates to confirm their interest in the study and to make an appointment in a convenient time / place for them. In agreeing to be interviewed, interview days were assigned at scheduled times for all candidates willing to participate in the study. Before the interview, the student investigator presented the consent form to study participants explaining the purpose and procedures of the study who was the interviewer in all cases. Interviews were tape-recorded or field noted based on the participant's preferences. Three in-person interviews were conducted at the institutional setting while other seventeen along with five focus group discussions in appropriate organizational settings.

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5.5. Data Collection

The study employed multiple methods of data collection based on site visits by means of individual face-to-face in-depth interviews, focus group discussions, participant observations, field notes and internal organizational document analysis regarding HACCP based system adoption (Britten, 1995). The study purposefully sampled different participants due to their professional and organizational roles. Participants who represent the decision makers in their organizations provided a rich source of evidence as they were in the center of important decisions and hold the most information. They were interviewed in a quiet room either at their workplace or in an institutional setting. On average, in-depth interviews lasted one hour and focus group discussions two hours. The length of interview varied between 60 to 100 minutes. Further focus group discussions were conducted to complete the picture of exploring the phenomena.

In-depth interviews were conducted once with top managers of the food processing organizations (Dicicco-Bloom & Crabtree, 2006). Focus group interviews with 6 to 8 participants each were hold involving policy makers and organization implementing food safety programs (Kitzinger, 1995). Field notes were kept during observations in appropriate meetings to capture impressions and insights to complement and validate the descriptions of findings. Overall, data from primary sources comprised 20 in-depth individual interviews and focus group discussions with 23 informants conducted between February 2015 and May 2015. The secondary data resources represent government reports, laws and regulations as well as relevant news items and interviews reported in the media to gather information from each organization before conducting interviews.

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5.6. Data Management

All interviews and focus group discussions were audio-recorded on a digital voice recorder in accordance with the consent form (Appendix 2, 3). After their completion, the content of the digitally recorded responses were transcribed verbatim in Armenian language and were translated to English by the student investigator using standard transcription guidelines (McLellan, MacQueen, & Neidig, 2003). The transcription of the collected data occurred in parallel to data collection (Glesne & Peshkin, 1992). Transcripts were reviewed for words and phrases related to the research questions of the study to check for accuracy by advisors who were trained and expertise qualitative researchers. All potential identifiers were anonymized and recordings were completely destroyed at the completion of the study. All data and documents were stored and secured on a password protected computer.

5.7. Data Analysis

Following the data management, interviews were analyzed applying the method of qualitative directed content analysis to identify pertinent barriers and drivers of HACCP adoption highlighted by study participants (Graneheim & Lundman, 2004; Hsieh & Shannon, 2005; Krippendorff, 2013; Sandelowski, 2000). Data analysis was done according to Elo and Kyngäs interpretation of the method that involves three stages of preparation, organizing, and reporting (Elo & Kyngäs, 2008).

The preparation phase of analysis includes selecting the unit of analysis and reviewing the data (Elo & Kyngäs, 2008). Each interview transcript was considered as a unit of analysis and each meaning unit represents words, sentences and paragraphs (Graneheim & Lundman, 2004). Transcripts were read repeatedly line-by-line and paragraph by paragraph in detail to ensure data familiarization and to identify recurring and contradictory patterns in the data. An

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initial analysis of manifest content of the data was done in conjunction with latent content analysis as possible using observations (Graneheim & Lundman, 2004).

The organizing phase of analysis includes developing a categorization scheme, coding the data and then grouping them by categories and themes (Elo & Kyngäs, 2008). After making sense of the data, a deductive coding approach was used to derive the categories, patterns and themes from the responses to open-ended questions (Burnard, Gill, Stewart, Treasure, & Chadwick, 2008; Elo & Kyngäs, 2008). The analysis included both the data that matched in elements of the theoretical frameworks used in the study and the data that cannot be coded (Elo & Kyngäs, 2008). For the latter case, additionally developed codes as arising concepts were derived from recurring ideas and emergent themes as the matrix of analysis was unconstrained (Elo & Kyngäs, 2008).

Data analysis began with dividing the interview text into meaning units that were condensed into codes (Graneheim & Lundman, 2004). They were compared moving back and forth between the entire text and the text segments (Graneheim & Lundman, 2004). Transcripts of individual interviews and focus group discussions were analyzed independently. Manually coded text of each document was uploaded into ATLAS-ti7 qualitative data analysis software to facilitate data analysis through computerized coding, organization, contrasting, comparing and retrieval (AtlasTi, 2015). Codes were abstracted into broader subcategories and categories based on recurrent and unifying concepts to derive higher order themes according to the aim of the study (Graneheim & Lundman, 2004).

Data analysis along with data collection as ongoing processes was employed in an iterative and recursive fashion relative to research questions (Morse, Olson, & Spiers, 2002). Additional data collection was used to feed the emerging findings to make sure that the depiction of findings was consistent and coherent with the whole text (Morse et al., 2002). Codes derived from the same categories were constantly compared between small, medium

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and large sized organizations and between organizations from Yerevan and regions. To reconcile discrepancies in coding and description, discussions and reviews took place to come up with the consensus in a study team.

The reporting phase of analysis includes describing analysis and findings (Elo & Kyngäs, 2008). The directed content analysis was completed using a structured matrix of barriers and drivers formed on the Roger's framework and emergent concepts to address the research questions (Elo & Kyngäs, 2008). A barrier was defined as any factor that impedes the effective adoption of HACCP based system in organizations, while a driver was defined as any factor that promotes this adoption process. The data was analyzed using a conceptual / thematic description strategy (Sandelowski & Barroso, 2003). Using Roger's framework and the Institutional theory consistent with study aims allowed developing a conceptual / thematic description of determinants that acted as barriers and drivers in the adoption process of HACCP based system (Sandelowski & Barroso, 2003).

The thematic saturation of data analysis was achieved after coding a total of 20 interview transcripts (Guest et al., 2006; Sandelowski, 1995). The selection of representative quotations for themes and subthemes occurred during and after the systematic coding of the transcripts to support different descriptions relative to the reported results below. Quotes with "FPO" indicates a participant from food processing organizations, "PM" a participant from the governmental authority and "PO" a participant from private organizations. Accompanying letters such as "MS", "S", "M" and "L" stand for micro, small, medium and large sized organizations respectively. Finally, letters "R" and "C" indicates organizations found in regions and near to the city. The findings of the study were not only simply reported but also supported by the existing research in the discussion section (Burnard, Gill, Stewart, Treasure, & Chadwick, 2008).

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For identifying the meanings and patterns behind the main interorganisational ties in diffusion, the study also implemented qualitative interorganizational network analysis (Merriam, 1998). For this purpose, the study used the tool known as Influence Network Mapping (Net-Map) developed by the International Food Policy Research Institute to collect the data (Schiffer, 2007). Network maps represent organizational relations on the map formed with the help of face-to-face interviews using ego- or non-ego-centric approaches (Gamper, Schönhuth, & Kronenwett, 2011). Analysis for this part was conducted by using UCINET, version 6, network software which had a plotting feature named NetDraw 2.0 to represent organizations and ties among them (Borgatti, Everett, & Freeman, 2002). The analysis is expected to demonstrate how existing patterns of relationships inherent in organizations impact the organizational adoption decisions and how the system functions. Network mapping requires involving all units of interest but because of time constraints it is not likely to carry out this, the study uses expert consultation during individual interviews and focus group discussions. Based on prior research, two different types of relationships encompassing only social ties such as flow of knowledge and flow of competition are of interest in the study (Borgatti & Foster, 2003; Brass, Galaskiewicz, Greve, & Tsai, 2004).

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5.8. Study Rigor

Several measures such as credibility, dependability, confirmability and transferability have been considered for ensuring study trustworthiness (Lincoln & Guba, 1985). Credibility was achieved through peer debriefing, triangulation and member checking techniques during interview guide development, data collection, analysis and documentation (Morse et al., 2002). Peer debriefing sessions occurred with faculty members for receiving their constructive feedback throughout data analysis. For triangulation multiple methods of data collection and multi-side engagement of respondents from different organizations were employed. A purposeful sampling method allowed including participants with various experiences relative to HACCP adoption. Also, a key informant approach was implemented to gather data from participants who best informed about the phenomenon within this study (Creswell, 2012, page 118). Member checking occurred with four food safety specialists and two key informants who reviewed and provided their feedbacks based on their perspectives and experiences. For enhancing study rigor, data collection and analysis occurred concurrently (Morse et al., 2002). Dependability was provided through the inquiry auditing including field notes, transcriptions of recorded interviews, an interview guide, participant observations and internal organizational document analysis to ensure the traceability and examine consistency of research decisions throughout the research process. Also, interviews were conducted by one interviewer within a short period of time to eliminate the risk of inconsistency in data collection. Confirmability was achieved through keeping a confirmability audit formed through the raw, processed and analyzed data along with personal notes. Transferability was achieved through providing the setting and sample characteristics, the ways of how data collection and analysis were accomplished allowing readers to decide how well reported results can be applicable to other contexts (Graneheim & Lundman, 2004).

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5.9. Ethical Considerations

The ethical framework used in developing the research project is based on the Code of Conduct for Research at AUA. The study was conducted under ethical approval from AUA's Institutional Review Board (IRB) prior to collecting data (Protocol #: AUA-2015-004) (Appendix 6). Study participants were provided with informed consent intended to protect the rights and welfare of participants.

The study adapted the general form of informed consent for qualitative studies developed in the School of Public Health at AUA and the template offered by the WHO. The consent form included the study purpose, the researcher, the degree of participation, the option of refusal without prejudice or penalty, confidentiality of shared information as the right to privacy of participant, anticipated risks and benefits of participation and non-participation.

The privacy of participants was protected by keeping back their names and related information from all individuals that were not involved in the study. The coding was used instead of using their names as an additional protection tool. The raw data after collecting the recorded information was kept in a locked box at the university. The recorded data was removed after finalizing the research findings.

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6. SECTION SIX: RESULTS

6.1. Sample Profile and Main Themes

A total of 43 eligible food safety professionals took part in the study representing 20 participants from FPO, 8 participants from a policy making institution and 15 participants from non governmental organizations (NGO). The participants' ages ranged from 27 to 62 years with an average age of 43 years, and the majority of the sample was male accounting for 62.8%. All respondents were well-educated with a university education (81.4%) or higher (18.6%) and had an experience with HACCP system. All participants of the study from FPO represented the top management level including owners (25.0 %), production managers (45.0%) and heads of food quality / safety departments (30.0%) (Table 2).

The responded dairy FPO were divided into micro (10.0% with less than 10 employees), small (35.0% with 10 to 49 employees), medium (35.0% with 50 to 249 employees) and large (20.0% with more than 250 employees) sized organizations. Because of their busy schedule, the potential participants from three FPO declined to participate in the study. Overall, three organizations from respondents adopted HACCP system through the ISO 22000 FSMS (15.0%) for less than three years and eight organizations (40.0%) were in the process of adoption. Nine of responded organizations were found in regions (45.0%) and 11 were found near to the city (55.0%) (Table 2).

Five main themes were formed to describe the determinants influencing to adopt HACCP system in dairy FPO. These themes were: (1) perceived attributes of HACCP system, (2) reported characteristics of organizations, (3) reported characteristics of communication channels, (4) reported characteristics of interorganizational network and (5) perceived characteristics of external environment. Table 3 provides a structured matrix of the barriers and drivers impacting on HACCP diffusion and adoption.

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6.2. Perceived Attributes of HACCP based Food Safety Management System

This theme reflects the perceived attributes of HACCP system among participants.

***Relative advantage*:** A number of perceived advantages have been reported by participants that fostered the adoption of HACCP system in their organizations. Informants from adopted organizations highlighted that HACCP system has provided greater control of different organizational operations and improved skills among organizational members permitting to have the sense of professionalism during their work. The presence of well-functioning traceability system was repeatedly reported another driving force for HACCP adoption by most of participants. They noted that the documentation of all production stages throughout a process chain allowed identifying the origin of a possible problem much faster and easier and promptly carry out appropriate corrective measures. As a result, this characteristic ensured higher satisfaction, convenience and effectiveness as reported by the informants. Participants mentioned that "HACCP was central" to ensuring necessary food safety activities in their organizations. Few respondents also mentioned that HACCP had a "scientific foundation" that made the system credible for them.

Participants from adopted FPO highlighted that the system implementation also influenced in increasing the image of their organizations among consumers and interest groups. Respondents explained this fact by decreased recalls of food products and avoidance of outbreaks that protected the reputation of their organizations better. Participants from larger organizations reported the continuity of innovation progress had a motivational perspective towards incremental improvements. Many of them mentioned that their organizations were involved in "building new factories" or "improving existing infrastructure" that would completely "address HACCP requirements".

"Our organization wanted to boost brand positioning and create distinctive perception in the customer's mind. The adoption of HACCP system has had a positive impact on the image of the organization."

(C:M:FPO representative)

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"I [respondent] think the biggest accomplishment is our company's good reputation through providing wholesome food products to our consumers. The adoption of HACCP system would be the next achievement in strengthening the image of our company."

(R:S:FPO representative)

"The collaboration with our partners and suppliers has started to be easier and more effective as well as the established relationships with our consumers become reinvigorated through greater consumer satisfaction."

(C:L:FPO representative)

"The adoption of HACCP will allow for our future consumers form their opinion faster about our company. I [respondent] must say, it sounds in other way when I am saying I am a millionaire and it is completely different when you can see it with your own eyes."

(R:M:FPO representative)

However, the participants also indicated some characteristics of HACCP system that had a negative impact on the decision to adopt. Initial costs are often mentioned as a dominant constraint in the minds of the potential adopters as high amount of investment was required to adopt HACCP system. Few participants mainly from smaller FPO mentioned that economic unprofitability was a barrier for HACCP adoption. They substantiated this with the argument that current food safety practices used by them were more cost effective compared to updating them through HACCP adoption. These barriers were especially highlighted by the participants representing small- and medium-sized FPO.

"Now, when I use a handsaw to cut a piece of wood and someone come and say let's take my chainsaw for the same thing, but I consider mine being good as well. The wood will be cut anyway.However, if you ask which one is better for organizing the process, of course I will answer the chainsaw but it requires additional investments."

(C:M:FPO representative)

"If the HACCP implementation, like other kinds of innovations requires high initial costs, our organization will face problems…"

(R:MS:FPO representative)

At the same time, participants also noted that the adoption of HACCP system was a "laborious process" and required "additional efforts and time" to run the system. Its adoption increased the workload among workers who besides being responsible for their departments

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functioning were involved in HACCP team including the heads of different departments. This barrier was particularly emphasized by respondents who reported that their organizations did not hire new staff to develop HACCP system but rather involved representatives of different departments into the team.

"The implementation process was quite complicated and laborious process, but after adopting it our work has become easier. Its introduction ensures the smooth running of the production making it comfortable as the CCP provide better organization, control and traceability capabilities"

(C:L:FPO representative)

***Compatibility**:* Important considerations of compatibility were highlighted by participants during the HACCP adoption process. Respondents repeatedly expressed that the personal values of organizational staff did not match to the mission of HACCP system. As participants mentioned staff members were mostly under certain misconceptions about HACCP system claiming that they were comfortable with the established practices and did not desire the change to occur. Participants commonly shared the view that staff members who actually participate in the adoption process showed "resistance to change towards establishing new food safety practices" due to "the reluctance to adopt HACCP system" or "old habits".

"Workers are reluctant about the new changes and they show resistance to working with HACCP principles."

(C:L:FPO representative)

"I would die before I explain necessary requirements of HACCP system to my workers to make them knowledgeable and compatible..."

(R:MS:FPO representative)

Practical incompatibility was reported mainly by the participants from medium and smaller organizations. Mostly participants expressed a concern related to the existing expertise and skills that staff members had. They noted that the lack of staff with particular expertise restricted the effective implementation of HACCP system emphasizing also the

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need for qualified specialists. This was emphasized as larger barrier for the FPO found in the regions.

"For adopting HACCP system the contracts of employment should be terminated with almost all employees as they do not match to the HACCP requirements in the context of knowledge, behavior and attitude. But we do not do this because we have doubts whether new employees could be capable of filling this gap as well"

(R:M:FPO representative)

Participants expressed and supported the need for enhancing knowledge and competences among staff to make HACCP system "sustainable and suitable for efficient adoption". On the other hand, as participants from focus group discussions noticed "broadening responsibilities without commensuration of benefits" to staff members may engender "tensions towards change" and even adversely "affect to the quality of their work". For the most part, working in accordance with HACCP principles did not provide significant reimbursement to create incentives for staff. Moreover, one participant noticed that "staff being interested and committed in the HACCP system adoption" was often not highlighted to serve as "role-models for other members" and not given rewards for "keeping the same level of commitment". Moreover, some of participants reported that punishment was a dominant measure for motivating their staff members to be devoted to the adoption of HACCP system.

"Different perceptions concerning to HACCP adoption in the organization often result to misunderstandings and in this situation it is very difficult to communicate with your staff in such an environment"

(C:L:FPO representative)

…specialists with good HACCP knowledge are required for correctly organizing the process of HACCP adoption in the organization. I have a general understanding of HACCP system, but it is not enough that I could help the organization with this issue...

(R:M:FPO representative)

Inappropriate infrastructural capacity was mentioned by the majority of the participants as a constraint for HACCP adoption in organizations. Moreover, lack of prerequisite programs including good practices such as GMP and GHP necessary for HACCP adoption was mentioned as a barrier mostly by medium sized and smaller FPO. Respondent

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from NGO noted that "companies used to adopt ISO:22000 system fully" when they could adopt through "step by step approach". Depending on the size of the organizations it was expressed in different extents. For large sized companies, this factor was less important barrier while for smaller and medium sized organizations it was an emphasized barrier. Respondents from larger FPO reported that higher scalability of equipment helped to have more effective HACCP system in place, meanwhile, low level of equipment was reported as barrier by medium and smaller sized organizations.

"Before deciding to adopt HACCP system, we had non-compliance of production buildings with the requirements of HACCP system… Reconstruction helped to fix these problems to avoid cross-contamination…"

(C:M:FPO representative)

"The introduction of HACCP system is not so difficult when the common prerequisite programs are in place and functioning… But our producers mostly have an intention to adopt ISO 22000 standard for food safety that could be much challenging to implement especially among small and medium sized companies... Incremental adoption helps to spread costs over time and could be a good solution for adopting companies."

(NGO representative)

"The HACCP system implementation is hampered by the ongoing construction in the company to inaugurate new production area…Only after finishing construction we could be able to think about the adoption…"

(R:S:FPO representative)

Lack of laboratory equipment in many FPO for food safety testing was reported as a barrier which was highlighted in smaller and/or regional organizations. Moreover, some informants mentioned that the access to reliable laboratory testing was another constrain for working in compliance with HACCP principles.

"Lack of appropriate laboratory equipment does not allow routinely ensuring product testing for a range of analyses in our laboratory… For checking product safety parameters, we [organization] send the samples of our products to the local laboratory two times in a month… There is also cooperation with the local state agency of food safety…"

(R:S:FPO representative)

"The organization has a laboratory to test as much as possible… If there is a need for broader specter of analysis, we send the samples to the private laboratories for testing… However, the results of the same sample received from different laboratories can be inconsistent with one another… In the amount of several million dollars investments are necessary to get appropriate equipment which we [organization] could not afford…"

(C:L:FPO representative)

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***Complexity*:** The complexity in incorporating HACCP system to the existing practice in organizations was reported as a major challenge. Participants reported that they had difficulties related to the mechanisms of HACCP operation that led to obstacles in its use. Here, the structural complexity of the system was reported to be a constraint at the implementation stage of HACCP adoption. Moreover, the complexity of the necessary technical knowledge related to complicated terminology for completing the documentation was reported as another barrier. The presence of too much documentation was mentioned as other hurdle. At the same time few informants mentioned that gradual acquisition of technical knowledge eliminated the overall complexity over time and documentation provided enhanced accountability of work activities of each employee.

"The HACCP requires additional time and efforts to develop documentation skills and complete necessary documentation for keeping control of critical control points"

(C:L:FPO representative)

"All companies adopting HACCP system complained about the volume of paperwork and record keeping… However, it should be viewed as part of the production and not something extraneous… It's the same as saying that the accountant complains about documenting financial reporting… If appropriately educated workers are present, any company will have no difficulty with it."

(NGO representative)

Observability and reinvention: In general, observability and reinvention of HACCP system were seldom reported. The study considered that this was related to the limited number of FPO that utilized HACCP system. Meanwhile, one participant mentioned "lower rate of cost recovery" as a barrier to adoption. Visibility of HACCP in functioning was mentioned as a hurdle among most of respondents that did not have HACCP system in place. However, participants from adopted FPO reported that they did not have difficulties for presenting the results concerning to HACCP operation to other interested adopters. One respondent reported that "the presence of prerequisite programs" increased the flexibility of HACCP application.

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6.3. Reported Characteristics of Communication Channels

This theme deals with the communication channels that were used by organizational members to become aware of the existence of an innovation based on the needs of their organizations. Managers involved in the decision-making process prioritized the needs and problems of their organizations and sought to gather information about an innovation to address their organizational problems.

Almost all participants knew that there were non-governmental organizations providing trainings and consultations. They reported that the participation in trainings greatly enhanced their awareness related to HACCP system. Respondents emphasized the importance of "consistent communication" within and outside of their organizations. At the same time two participants reported the importance of "persuasive language" as a promoting factor.

Participants reported they gained the knowledge from different guidelines and manuals prepared by the governmental authorities. Participants viewed free access to guidelines and manuals as facilitating factors concerning to HACCP adoption. However, respondents from adopted organizations expressed a concern about the level of maturity and professionalism in trainings and guidelines. They complained that trainings and guidelines should not be the same level for all participants as adopted FPO needed advanced level information compared to non-adopters. Participants noted that these materials were mostly useful for adopting organizations, while there was a need for advanced materials for adopted organizations. In this context, there were also a number of reports in which participants from adopted organizations received necessary information from internationally known food processing organizations adopted HACCP system. On the other hand, representatives from non-governmental organizations mentioned that "there was no culture to pay for food safety consultations" and "the lack of consultation" adversely impacted to the correct adoption.

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"…we took into account the experience of HACCP adoption from internationally known producers that helped to implement it in our organization..."

(C:L:FPO representative)

"The broadcast and print media played an insignificant role in informing about HACCP system. I am trying to remember anything shown in media in the last 6 months or a year, but I can not…"

(R:M:FPO representative)

All participants stressed the fact that the influence of mass media on the knowledge creation was minimal and played an ineffective role for informing relative information to them. Informants involved in decision-making process used mainly the local sources to receive basic knowledge about HACCP system preferring local expert advice. Few informants from adopted FPO and many representatives of focus group discussions mentioned that they also received relative information from cosmopolite sources. Participants from adopted organizations reported that they had to contact consultants from outside to be presented with the information for finalizing the implementation of HACCP system in their organizations.

High performing FPO served as a source of information for other FPO in the field as mentioned by respondents. However, participants from adopted organizations preferred to exchange their knowledge and experience in formal meetings. The importance of regular meetings was highlighted by the informants to share up-to-date evidence. At the same time, they reported that they were networked with colleagues from other organizations. Meanwhile, in regional level the participants highlighted that policy makers were not as much effective as they needed to receive information related to HACCP system adoption that resulted to "ineffective communication". Informants mostly from adopted organizations reported that they conducted trainings for their staff concerning to the HACCP adoption.

"...we prefer to share our experience through organizing official meetings between representatives of different companies and we are ready to share our experience"

(C:L:FPO representative)

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"Trainings are conducted for staff mainly inside the company… We invite a food safety specialist from a governmental authority to receive appropriate advice and knowledge."

(C:M:FPO representative)

"A businessman was granted 1 million euro to establish a food processing factory. He applied to our organization for relevant services besides the department of food safety. When I asked him as a head of the department to know the reasons of such behavior, he just replied that he would ensure cleanliness. I want to emphasize that Armenian businessmen do not have a culture to pay to take expert consultation for food safety. Now, this organization is not functioning and many reasons of the closure were related to food safety."

(NGO representative)

Remoteness for FPO found in regions was reported as a barrier for missing the trainings and for being involved in the adoption processes. Many informants noted that they preferred to hire specialists advised by their peers. One of participants mentioned that "in spite of the faults" this is a "traditional approach".

"Because the organization is found in a relatively remote area, specialists refuse to come for working… even if individuals that have an appropriate education and live in a near area are not skilled enough to hire them…"

(R:MS:FPO representative)

"If I see a more knowledgeable person, should I take him / her to work? Of course, yes. But in our country often this is not the case, I'm giving the position to my relatives and friends instead of providing to more skilled professionals…"

(C:M:FPO representative)

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6.4. Reported Organizational Characteristics

This theme deals with structural and nonstructural determinants of organizational innovativeness.

Attitude and knowledge: There was general consensus among participants concerning to the adoption of HACCP system which was viewed to be beneficial to FPO and the food system in general. Most descriptions of HACCP system among participants had a positive undertone. It was seen as "preventive", "decreasing the risks" system which gave the organizations "increased options to export" which was highlighted as a vital perceived advantage by almost every respondent.

"The HACCP is a preventive measure to avoid damaging factors to the consumers transmitted by food. For example, one of the risk factors may be the presence of metal pieces randomly appeared in the product. So, how can we exclude this risk factor? We can do this through advanced manufacturing practices where there will be metal detectors helping automatically to find metals and remove such products from the production line."
(C:L:FPO representative)

"The HACCP is a means of having right and competent production, ensuring highest safety levels of products, and providing safe foods to the supply chain for the consumers."
(R:S:FPO representative)

"The HACCP is a culture and consumers do not need to become so knowledgeable for different products to be able to select which product to eat and which not to eat. Modern people are so busy now and have so many problems to solve. A consumer should see the HACCP logo on the package and without thinking buy any product that prefers…"
(C:M:FPO representative)

However, asked questions about HACCP system perceptions and understanding revealed that there were discrepancies in perceived innovation attributes and preferred attributes among adopters from FPO. This barrier was notably emphasized among informants from regional organizations who were relatively less aware of HACCP system than among participants near to the city. They were able to mention only one or two characteristics of the HACCP system. At the same time, the young managers were more knowledgeable about the HACCP system compared to the older managers. Along with the barrier of "attribute gap",

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the misunderstanding of the HACCP system was another barrier among respondents who used terms such as "quality assurance", "labeling products", etc. Some later adopters representing participants from smaller organizations showed a sense of disenchantment.

"The HACCP is about quality control of products, personnel management, etc…the system will create redundant responsibilities for us… It will allow having production expansion in the local market…"

(R:S:FPO representative)

"This system is about ensuring the control of hazards during production processes, cleaning technological equipment and cars, and food supply."

(R:M:FPO representative)

I understand HACCP as having well labeled products containing all the necessary information on it, the building conditions and production lines should be appropriate, the ready for consumption products should be high quality...

(C:M:FPO representative)

Organizational culture: Respondents noted the role of managers in the diffusion and adoption processes of HACCP system. They emphasized the importance of managerial continued commitment to HACCP adoption. One of informants mentioned that "managers with higher administration tenure" were more likely to create a supportive environment among staff.

"The HACCP adoption is a pretty long process during which the organizational skills of our managers in arranging relative activities in the company and their commitment to those activities have had a large impact on not burning out our employees and fostering team spirit among them towards achieving stated objectives."

(C:L:FPO representative)

Participants from large FPO mentioned the need to push small organizations towards active collaboration with them.

"Have you seen that small companies participate in exhibitions or conferences and observe the experience of larger companies to be pushed forward in the market? There is no such thinking among many of them. Mostly they [small companies] wonder how they can produce certain type of products and find contacts for selling them… nothing more… Then, how HACCP system can be relevant to the ongoing culture of many such organizations?"

(C:L:FPO representative)

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One of participants mentioned "illusion of control" concerning to the low perception of food safety risks as a barrier to HACCP adoption when top managers considered that existing practices can ensure further the safety of food. This barrier was highlighted among organizations that did not have an intention to export their products.

"When a company reaches to the increased scale of production, at some point you realize that critical points are increasing along with enhanced production volumes which could trigger further problems if not timely addressed. If the company continues producing at the same pace for more gains being sure that safety is under control, then in an instant a producer will understand that may lose the acquisition which has been achieved in a hard way. And what could mean that for the producer? It will mean losing some part of your way, a part of your life, because the expansion of the production usually requires enough time and efforts..."

(C:L:FPO representative)

A barrier was identified when participants were asked about their organizational goals and strategies. While most of larger organizations had clear strategies and goals, the smaller and / or regional organizations had poorly developed ones serving as barriers. Participants described having a "clearly stated organizational vision and strategies" as facilitators. For example, in two organizations the administration was completely changed within two months until interviewing them and because of lack of goals and strategies, they were unaware about the long-term goals for their organizations to integrate the HACCP adoption with organizational action plans.

"...the organization goal is to work for not being closed, move forward and conquer markets. This goal has been set 10 years ago and will be remained within 10 years as well."

(R:S:FPO representative)

"One of the companies collaborated with our department [of food safety] for HACCP implementation. After accomplishing 90% of all activities required for adoption, the executive team was replaced with newcomers. To our big surprise, they refused to continue working towards the adoption in case we were in the stage when financial investments were already not required. Three years on, they contacted with me and asked that they wanted to get a certificate right that time as inspections were going to be conducted. But I had to notify them that it would take one more year to restore the old things."

(NGO representative)

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"We [organization] used to revisit and refine the organizational goals and objectives regularly to reflect the reality of the changing situation on them for achieving better outcomes. For this reason, the administration sets such objectives that are achievable, measurable and motivational at the same time…"

(C:M:FPO representative)

Company size: Participants from larger FPO reported that they were more comfortable with HACCP adoption compared to the participants from medium- and small-sized FPO. Participants from smaller FPO mentioned that lack of appropriate resources and skilled staff as great barriers. Meanwhile, respondents from larger organizations reported much less concern related to this.

Centralization: Participants from larger FPO reported high degree of centrality in decision making processes. Particularly the adoption of HACCP system was taken by the owners of FPO. Centralization was especially greater emphasized in medium and smaller sized organizations.

Complexity: Informants from medium- and large-sized organizations reported that their organizations had different departmental units functioning in various areas along with their specialists. In adopted organizations, as participants mentioned, HACCP team consisted of the representatives of different departmental units instead of hiring new staff.

"The right of making a final decision in a company to carry out any innovation definitely belongs to the owner. But before it, a group of specialists from different departments is assigned to examine any innovation carefully. The results are later presented to the owner with positive and negative aspects analyzed. Based on these results, the owner makes a decision whether to adopt or reject."

(C:L:FPO representative)

Meanwhile, respondents from smaller organizations mostly reported low degree of functional differentiation. Most of them expressed the need for specialists that was highlighted especially by informants from regional organizations.

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Formalization: Participants reported that they and staff members often had more responsibilities than in their contracts. Some respondents of smaller organizations said that staff mostly did not rely on written forms of responsibilities.

"I am the executive manager, the engineer technologist, the laboratory worker and the cleaner of my company at the same time…"

(R:M:FPO representative)

"When we have meetings with the representatives of companies concerning to the implementation of the HACCP system, we are usually unable to speak with them for five minutes because of a long queue of workers waiting for them for different problems… You could imagine the situation of managers at the end of the working day… If I were the executive manager of any company I would adopt HACCP system only for avoiding from such headaches where everything and everyone are in its place."

(NGO representative)

"The general responsibilities of our employees are written in their employment contracts, but we do not have job descriptions in a written form for each type of work activities… we verbally explain their duties…"

(R:S:FPO representative)

Informants mostly from large-sized organizations revealed that the production of food products was accompanied by so called "route sheets" for documenting each stage of production. They reported also that there were certain procedures for rewards or punishments. The lack of operationalization plan for HACCP adoption was identified as a barrier.

"We have route sheets for each food product that are completed by the representatives of the laboratory and manufacturing departments keeping right track of production activities"

(C:L:FPO representative)

"The company has adopted motivational strategies for its employees. When workers do not follow states rules they are subjected to financial or administrative penalties, or even dismissals to put forth them and others to present adequate efforts toward the achievement of organizational objectives…We reward our employees if they do truly outstanding things in their work…"

(C:M:FPO representative)

Slack resources: In general, the lack of slack resources was reported as a barrier by many respondents. The scarcity of recourses was highlighted as a vital issue by participants from small and medium sized FPO. They mentioned that financial resources needed for

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"increasing the readiness of their organizations for HACCP adoption". The lack of excess time was mentioned as another issue as they mentioned HACCP required additional time to keep it running in conjunction with completing relevant documents. The absence of excess human resources was reported as another hurdle.

"If our company has enough resources for adopting the HACCP system we will definitely work based on HACCP principles"

(R:MS:FPO representative)

6.5. Reported Characteristics of Interorganizational Networks

This theme reflected the reported meanings and patterns of certain interorganizational relationships that allowed developing a network map visually to show existing ties between them (Figure 9). The network map entails organizations representing nodes and their relationships as ties recognizing that participants from higher level administration represent their organizations. Informants provided egocentric or personal network data surrounding their organizations. In this study, the boundaries of an interorganizational network system in which an innovation diffuses represented food processing organizations of dairy industry targeted by the governmental and non-governmental organizations that helped them to adopt the HACCP system.

Figure 9 visualizes the interorganizational network demonstrating the flow of knowledge and the flow of competition relative to HACCP system adoption as reported by informants. The figure allows visually illustrating the presence and the absence of organizational ties. As it can be noticed, at the local level NGO played an instrumental role in communicating the appropriate information to FPO in terms of trainings and consultations reported earlier by informants. They sought advice and support also from governmental authorities where the greater reciprocated ties were reflected. The lack of reciprocated ties served as a barrier in regions for the diffusion process and resulted to have the presence of

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passive recipients of new information in the network. And because they often missed trainings conducted in the city, participants often relied on trusted colleagues for necessary information. Larger organizations were more centrally situated in the network due to the many ties. Network map showed that relations were clustered around larger FPO, NGO and central PM. The network map showed also the presence of ties that brought new information into the organizations from external sources. From the map it can also be noticed that organizations were connected mostly through direct ties that may make the ties stronger.

The network map may indicate which actors can be considered as opinion leaders. Based on the reports of participants, two types of opinion leaders including experts and peers were mentioned that mostly represented larger FPO, NGO and policy makers. As informants mentioned the representatives of those FPO that already adopted HACCP system can give necessary information for later adopters. The presence of positive opinion leadership by FPO that adopted HACCP system informally played an important role in forming actions and attitudes of non-adopters. At the same time, while actors from larger FPO served as a source of information for others, actors from NGO and GO also served as influential contributors on adoption decision. From the map it can be noticed that there are lots of structural holes (Figure 9).

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6.6. Perceived Characteristics of External Environment

This theme deals with the institutional forces as external factors influencing FPO to adopt the HACCP system.

Coercive pressures: As reported by participants, the political agenda of the government has instrumentally impacted on involving the HACCP system adoption into the agenda-setting process of FPO. Legislative influence has been vital in focusing organizations' efforts towards the adoption as the government was the main initiator of this institutional change. The representatives among key motivations for adopting HACCP system mentioned the need to meeting food safety requirements by law and to increase the export. Participants rarely connected the adoption of HACCP system with maintaining or increasing public health.

"We do not want to leave the knife to reach bone and then start thinking about the introduction of HACCP system… We have a lot of ifs and buts before adopting the system… But since we are obliged to implement the system whether expensive or cheap, good or bad, I have to adopt the system…"

(C:M:FPO representative)

Participants had certain complaints concerning to the licensing, inspection and regulation by the governmental authorities. Respondents mentioned that many NGO were involved in provision of HACCP certification to FPO with different levels of requirements. As they reported some NGO require passing through tough certification processes to become competent for HACCP certification while some provided certification with easier steps. Respondents from certain NGO also highlighted that the evaluation of HACCP functioning in adopted FPO should be conducted thoroughly after providing HACCP certification.

Respondents from smaller organizations reported that more governmental regulations in the industry are required in the current stage of economic development when the environment of competition was poorly developed. Also, participants emphasized that the checking of productions should be done in accordance with HACCP principles.

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"Stricter governmental regulations may be of help for enhancing business standards in the food industry as not all problems inherent in the field can be addressed by industry self-regulation"

(R:S:FPO representative)

Informants mainly reported that there was no great public demand for enhancing food safety practices. Related to this fact, NGO representatives explained that it can serve as barrier to adoption because whether they produced with HACCP principles or without, it almost do not affect of consumers choice as they were unaware about the system. They mentioned the importance of educational programs for enhancing awareness among consumers. Difficult economic situation was mentioned as another factor contributing to the slow adoption of HACCP system. Moreover, two participants mentioned about the "restricted position of the local market into the international market".

"Today low levels of public self-consciousness and high requirements for food safety enhancement relative to HACCP adoption are not consistent with one another. Maybe 5-10 years on, public self consciousness will increase and they will require adopting the HACCP system I will implement"

(C:M:FPO representative)

"Existing difficult economic situation in a country and consumers unawareness related to food safety issues hinders the process of more efficiently adopting advanced food safety practices such as HACCP…"

(R:S:FPO representative)

Some informants suggested that revisions towards enhancing accountability and transparency of available financial resources for efficient expenditure management purposes should be done the governmental authorities in actualizing varied strategies for HACCP adoption. Other reports included finding pathways for acceptable balance between pressures and supports to move away from supervisory role to a much more supportive role during inspection checks to serve to capacity building during HACCP adoption.

Participants from smaller FPO also mentioned that they did not have sufficient incentives to adopt the system while larger FPO reported about the options of exporting.

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"If I was driven by the pure will to adopt the system in the organization I would never do that… Why do I need it if working without HACCP principles does not impede the organization to produce and send products to stores?"

(C:M:FPO representative)

"I believe that the HACCP system should be adopted in those organizations that have export-oriented market. If my competing companies export to western countries and I'm not and even I do not have a purpose, why should I implement this system??

(R:M:FPO representative)

Respondents from NGO noted that food safety inspectors do not have a formal framework for implementing assessment activities of compliance with HACCP principles in FPO. This can result to bureaucracy costs that were reported as another barrier. For example, when food safety inspector finds certain problems then "they should punish or enforce companies to put right problems" as reported by one respondent.

"How can we expand our manufacturing operations and advance food safety practices to conquer new markets when we have to spend so much time and resources to deal with inspections and incur heavy financial penalties for addressing noncompliance?"

(R:S:FPO representative)

"Food safety inspectors should verify the compliance of HACCP in FPO through appropriate strategies. They should check whether there are stated CCP in the food chain or not and if there are what necessary steps are undertaken for controlling them. But they generally work like did during Soviet time."

(NGO representative)

"Food safety inspectors visited to our company on a routine inspection and detected the structural defects inherent in production site asking to repair. I [respondent] informed that we were unable to cover such expenses for that time and needed a reasonable amount of time to implement changes. However, the company was fined for breaching the terms of safety requirements regardless of the fact that the problem was left unresolved."

(C:M:FPO representative)

Many participants expressed complaints regarding the existing national system of standards. Respondents mentioned that for exporting their products to the Western markets their organizations should comply with national GOST standards and international SPS standards that would make their products costly and incompatible. Informants added that even if their organizations adopt HACCP system, the presence of GOST system would form

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difficulties to access to international markets as it is not WTO compliant. Only two participants highlighted the importance of export diversification. Respondents from NGO mentioned that FPO have a desire to implement ISO 22000 in case when many of them did not have prerequisite programs. They added also the need for developing epidemiological data on FBD.

"What I really think about our national standards for food safety regulation is the urgent need to modify them and make compliant with sound international standards. My company is working to the direction for adopting HACCP system but how we would benefit when existing standards represent a barrier to international trade. Most of us [organizations] exported our production mainly to Russia but recent events showed how important to have a more diversified export base for each company…"

(C:L:FPO representative)

"We [organizations] follow food safety regulations that need to be based on experiments and relevant conclusions to address health and safety risks from food. Can our country actually afford to invest resources for such experiments to shape provisions for such regulations? In the best case we can take the example from other countries and make it fact for us."

(R:S:FPO representative)

"...now the organization is working based on the State Standards (GOST) inherited from the former Soviet Union, and the concepts of HACCP system are not fully compatible with organizational needs..."

(R:M:FPO representative)

Some participants representing the local-market oriented entities did not feel the need to adopt HACCP system as their organizations produced only for the local market and had no aim to export. Participants from such organizations were comfortable with existing institutionalized framework of food safety as the absence of HACCP system did not impede the survival of their organizations. In conjunction with this, they also reported that the market was not sufficiently competitive to gain expected benefits from its adoption.

Mimetic pressures: The replication of successful experiences as perceived by respondents was reported as being prevalent in the field. Many of them reported that it could be explained by the high degree of environmental threat and ambiguity due to the lack of action plan.

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One participant from medium-sized organization reported that had prior unsuccessful experience with adopting quality management system and expected the same would occur with the HACCP system.

"My organization permanently implemented ISO 1900:2000 for three years but I did not fully understand what the requirements of that system were while we had it. For this reason, I did not extend the contract but continued to mark its logo on the products for which the organization was penalized... I was disappointed and never applied for that system anymore as I can produce without it"

(R:M:FPO representative)

***Normative pressures*:** The advocacy to adopt HACCP system by international organizations including WHO, FAO and WTO has been reported driving forces by the representatives of appropriate organizations implementing food safety enhancement programs in Armenia. The provision of guidelines and manuals was often sponsored by them to share similar instructions in the field to form general approach among FPO.

Respondents from NGO emphasized the need to having more training programs for food safety inspectors. They highlighted that food safety inspectors conducted food safety checking in their organizations not in compliance with HACCP principles. Respondents mentioned the importance of technical support and trainings in facilitating the adoption process.

One of participants who also represented an educational setting of appropriate program mentioned the lack of food safety education in the curricula of educational programs of food technologies as barrier. The lack of discipline about food safety management systems such as HACCP was absent.

Participants described "resistance to change among organizational staff" as a "reality of the existing norms" that were present in FPO and which formed behavior patterns leading organization actions. The importance of education through consistent internal and external training programs were highlighted by many informants that could allow developing common approaches and norms towards HACCP adoption making its adoption faster.

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7. SECTION SEVEN: DISCUSSION

The focus of this study was to provide an in-depth insight into understanding varied barriers and drivers associated with HACCP adoption and diffusion that is in line with the purpose of other studies (Taylor & Taylor, 2004; Wilcock et al., 2011). Roger's theoretical framework and the Institutional theory facilitated the deductive analysis of qualitative data and the description of study findings. All food processing organizations are in the role of adopters or users of innovation for whom the description of findings refer to (Kimberly, 1986). To the best of our knowledge, this is the first study conducted in Armenia to examine determinants that hampered or facilitated the organizational adoption of HACCP system in organizations.

Reforms in food safety enhancement should be based on a science- and risk-based approaches to address current challenges and to eliminate consumer exposure to FBD (FAO & WHO, 2005; IOM, 2010). According to the results, the HACCP adoption gave rise to a host of questions and triggered several challenges for all sides involved in the diffusion and adoption processes. The results showed that dairy industry represented companies with various sizes. The study also revealed that certified dairy organizations controlled food safety hazards better unlike non-certified FPO which appeared on a relatively frequent basis at the center of food safety scandals. Similar findings were reported in the literature (Psomas & Kafetzopoulos, 2015).

The study revealed that participants mostly admitted that existing traditional food safety practices were not sufficient to ensure the safety of food in accordance with international standards and espoused the need for making food safety improvements. Nonetheless, in examining the experience of participants in their organizations, the study found that some organizations were at a very early stage of HACCP adoption processes while few participants mentioned that their organizations had not an intention to adopt HACCP

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system. Younger managers were more receptive to HACCP adoption in FPO who were also more knowledgeable about it. This may be due to their frequent participation to external HACCP trainings conducted by certain NGO that helped them constantly extending their knowledge relative to their organization's needs. The study found variation in the knowledge level between participants from regions and near to city. It was apparent that there was a dearth of information on HACCP system among participants from regions as they were less knowledgeable than participants from city. This may explain the fact that participants from smaller organizations notably in remote areas reported higher degree of uncertainty about HACCP system. Meanwhile, Rogers offered that increasing knowledge about the innovation would decrease uncertainty about it. Also, the descriptions of HACCP system by informants revealed a barrier which in literature was called as an "attribute gap" (Bessant & Tidd, 2007). When the magnitude of total attribute gaps in knowledge is large, the continuous knowledge adoption among adopters is less likely to occur for forming greater understanding of the HACCP system and making more sustainable decisions for adoption (Bessant & Tidd, 2007).

Recent studies have emphasized the distinctions between small and large organizations when it comes to innovation and a positive effect that innovation might have on their performance (Rosenbusch et al., 2011). As provided by diffusion of innovation theory, the perceived benefits of an innovation play a vital role in the HACCP adoption process. The study unveiled a remarkable coalescence of opinions to which HACCP system has been perceived as a beneficial innovation by the majority of participants. These considerations build the ground for claiming that positive attitudes of top managers towards the system is a driving force in the stage of initiation and adoption decision. The formed positive attitudes of adopters towards HACCP system may influence later adopters to form positive attitudes as well. Participants acknowledged the need for HACCP adoption that would move forward the existing food safety practices towards advanced level providing better options to function. It

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is interesting to note that the general tenor of participant's arguments relative to HACCP adoption was mostly advancing foreign trade relationships rather than public health protection. This finding may be explained by the newly developing consumer friendly approaches prevailing in the industry.

The study also found that for the most part as reported by participants, the organizational change relative to HACCP adoption has caused some apprehension among staff members. As such, HACCP adoption required additional responsibilities and commitment from organizational members. Organizations did not prefer to hire new staff rather than involve the representatives of different departments into HACCP team. Meanwhile, staff members were mostly not provided with sufficient incentives to become enthusiastic adherents of the system adoption. Regardless of the organizational size, age and resources, the resistance to change among staff members was reported to be one of major barriers. Similar findings have also been reported in the literature that suggested reducing this barrier through learning perspective to develop strong technical competencies to become ready for change (Baş et al., 2007; Brown, 1981). This is expected to be addressed when substantial shift in attitudes and behaviors of organizational members can be achieved. In this context, the organizational continued commitment to adoption and the support of top management contributing to the successful adoption of an innovation are factors present in the literature (DuBrin, 2013).

The study argues that the knowledge management in FPO can be a critical success factor in efficiently adopting HACCP system. It is a set of tools, methods, approaches, etc. directed in creating, storing and applying knowledge to enhance organization's effectiveness (Alavi & Leidner, 2001). The positive relationship between using efficient knowledge management strategies and organization's performance was empirically established (López-Nicolás & Meroño-Cerdán, 2011). The awareness enhancement of HACCP system is a

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considerable issue notably for small organizations in remote regions identified in this study. Participants were aware of existence of HACCP system but had little knowledge about its functionality and features to be engaged in the adoption process. Meanwhile, increased awareness can eliminate uncertainties about the innovation and help organizations to form a likely picture of needed investments (Brown, 1981). The study also indentified the need for the betterment of training schemes as a barrier also present in the literature (Wilcock et al., 2011).

Different constraint that may result in unsuccessful restructuring characterized with changes in organizations and an innovation to suit one another needs. In addition, the mutual adaptation occurs better when an innovation is flexible enough to be reinvented and become user-friendly in a certain organizational context, and organizations by their turn are ready to adapt their structure for an innovation. When the needs and problems of the organizations is fit with an innovation, further planning and design of an innovation implementation are initiated. When senior managers become active information seekers, consider the feasibility, the benefits and negative perspectives of an innovation to reduce its uncertainty and form an attitude towards it.

According to Rogers, the relative advantage is the strongest element in predicting the rate of adoption of an innovation (Rogers, 2003). Most empirical studies reported the positive relationship between relative advantage and the adoption of innovation (Kapoor et al., 2014; Tornatzky & Klein, 1982). In theory, when members of an interorganisational system anticipate more benefit from adopting an innovation as being better relative to existing practice it positively impacts its rate of adoption (Rogers, 2003). Overall, when innovations are perceived not complicated by adopters they are more likely to be adopted faster (Bessant & Tidd, 2007). The HACCP system can be characterized as an incremental rather than radical innovation as it allows refining and improving the current practices of organizations instead

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of making existing practices obsolete. Organizations mostly followed the incremental pathway of change through continued improvements in their settings. However, while HACCP adoption apparently is an incremental innovation for larger organizations, radical changes are required in smaller organizations.

The HACCP has been reported as an effective system through providing traceability. In this context, effectiveness refers to the extent when the innovation is perceived as more capable of accomplishing an ideal end-state (Dearing & Meyer, 1994). The centrality of HACCP to daily activities has been mentioned as an important attribute to organizational performance. The characteristic of centrality is also present in the literature (Wolfe, 1994). Commonly, participants from micro and small sized FPO perceived HACCP system as not compatible with their organizations. This was more highlighted among the younger and / or regional organizations. The literature suggests that simplicity of the innovation is positively related to HACCP adoption, meanwhile, informants reported the adoption of the system as being complex (Kapoor et al., 2014; Tornatzky & Klein, 1982).

The value compatibility and practical compatibility has been reported constrains for HACCP adoption. Meanwhile, greater value compatibility and practical compatibility are positively associated with an innovation adoption (Kapoor et al., 2014; Tornatzky & Klein, 1982). Klein and Sorra stress the significance of value compatibility in an adoption process (Klein & Sorra, 1996). They offered a combination of steps such as ensuring staff member's participation in decision-making processes relative to innovation adoption, educating them about the value an innovation can add, providing incentives for its use to customize and to promote efficient adoption of an innovation (Klein & Sorra, 1996).

Complexity of technical knowledge reported in this study, especially the completion of appropriate documents is present in the literature (Lowe & Taylor, 2013). Dzwolak provided the Polish experience of small FPO in dealing with over-documenting of the

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HACCP system (Dzwolak, 2014). The participants also reported that their organizations are trying to revamp their image through HACCP adoption. The study showed that HACCP adoption increased the reputation of FPO, however, consumer confidence due to adoption played little role in it because of low awareness. Other studies also reported similar findings (Wilcock et al., 2011).

Economic profitability refers to the extent whether the innovation is more cost effective than the existing practice (Dearing & Meyer, 1994). In this context, the economic unprofitability appeared to be negatively associated with HACCP adoption as participants reported that the adoption required continuous investments for addressing new demands and additional resources compared to current food safety practices. The study argues that this can be explained by the effectiveness of HACCP system adoption which requires further studies. On the other hand, result demonstrability played as a driving force reported in the literature (Kapoor et al., 2014). At the same time, the lower rate of cost recovery is negatively associated with an innovation adoption which participants mentioned as a barrier (Tornatzky & Klein, 1982).

Replacement of old technologies and enhancement of equipment scalability were mentioned important directions to HACCP adoption for eliminating relative barriers. This barrier as an technological factor was mentioned by Brown (Brown, 1981). Adequate laboratory equipment and services for conducting food safety checks were mentioned barriers. The presence of accredited laboratories accepted in Western markets would facilitate safety testing of food products for organizations that adopted HACCP system and can meet the requirements easier.

Almost all participants noted that the institutionalization of a new value system towards advanced food safety management approaches in their organizations was a critical driving force for contributing to the efficient adoption process. The enhancement of

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knowledge, expertise and skills is the foundation for having a new value system in FPO (Ehiri, Morris, & McEwen, 1995). The role of human resources has been highlighted in the literature (Fotopoulos et al., 2009). The Institute of Food Science and Technology has also emphasized the continuous professional development and the consistent enhancement of competencies among food safety professionals at the individual level which was why a Professional Food Safety Register initiative has been launched for them (Kiiveri, 2014).

Diffusion literature emphasizes the importance of communication in each stage of innovation process as the communication channels affect the adoption (Rogers, 2003). The preconditions of individuals such as previous experience, needs, innovativeness and organizations' existing norms influence the generation of knowledge. Mass media such as television, radio and newspaper along with cosmopolite channels providing information from outside the social system are predominantly effective to raise awareness and knowledge about the innovation (Rogers, 2003, page 18). On the other hand, interpersonal channels along with localite channels ensuring information from within the social system are relatively more powerful for persuading an adopter to form or change an attitude toward HACCP system. In developing countries, the combination of cosmopolite interpersonal and mass media channels account for 81% and 58 % at the knowledge and persuasion stages respectively (Roger, 2003, page 2008).

The study revealed that the mass media is far from playing a necessary role in the change process and it was criticized. It played little role in influencing the attitudes of administration workers in the organization to HACCP system. Also, the informal interpersonal communication is the most powerful way of diffusion. The organizations seem to prefer relying on their peers for advice in deciding to what agencies to apply to initiate HACCP adoption process. Participants received information mostly from interpersonal channels based on subjective judgment or experience from their colleagues.

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At the same time, the use of rhetorical strategies was mentioned through providing logical and persuasive information relative to HACCP adoption for increasing the influence of consultants. Language present in communication might also play an important role to gain knowledge and form attitude toward an innovation (Green, 2004; Suddaby & Greenwood, 2005). The role of internal communication is important for delivering sufficient information to staff members. However, interpersonal communication across organizational members may not be enough intensive for faster diffusion.

Adopted organizations served as communication sources for adopting organizations to receive information. The organization of consistent formal meetings can better enforce the promotion of HACCP system among later adopters (Ehiri et al., 1995). At the same time, the adopted organizations sought advice and support from outside, more specifically, for raising awareness of the mechanisms of the HACCP system functioning. In this context outside sources to large extent satisfied the innovation needs of participants. The study results implicated pretty degree of homophilous communication as participants were very similar in certain characteristics.

Consultants representing change agents play a decisive role in the organizational adoption process for producing a plan of action, launching it and constantly monitoring the progress (Havelock & Zlotolow, 1995). The role of change agents is particularly emphasized to provide greater support to the later adopters. Rogers argues that external change agents play subtle role in interpersonal communication compared to the huge role of opinion leaders or near-peers with slightly higher prestige in reducing the uncertainty about an innovation. In this context, the extent of cooperation between these players will influence the diffusion process. In this study, due to the reports of participants, representatives of certain NGO represented the role of opinion leaders. According to the diffusion literature, opinion leaders are innovative and have relatively greater social status, impersonal connections and options

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for dissemination that enable them to express relative information and advice to other members of the network (Rogers, 2003). The role of opinion leaders is vital in facilitating the diffusion and adoption of innovation (Watts & Dodds, 2007). The study findings are consistent with literature that opinion leaders can be either the source of information or the source of influence on HACCP adoption or both of them (Lomas, 1993; Weimann, 1994). However, organizations found in remote areas pointed out that they would like to be more actively involved in the adoption processes.

Having values, goals and strategies are necessities to direct current transformations and diversifications inherent in the food industry towards establishing efficient, integrated and proactive FSMSs (Dahlberg, 2001). Dynamic capabilities are often critical drivers in facilitating organizational adaptation to changing environments and ensuring subsequent organization performance (Eisenhardt & Martin, 2000). In this context, the strategic leadership has been emphasized for integrating and making compatible organizational skills and resources with HACCP principles (DuBrin, 2013; Eisenhardt & Martin, 2000). Organizational leaders instrumental role in organizational performance for creating the environment for change and innovation (DuBrin, 2013). Leaders who have pretty long administrative tenure in their positions are more important in this process, especially when they show their clear vision about the system, persistence and devotion to the adoption processes. The literature also emphasizes the vital role of the management commitment during HACCP adoption (Milios et al., 2013). The barrier of "illusion of control was found in the literature (Panisello & Quantick, 2001). The literature also highlighted the organizational attributes such as lack of prerequisite programs and the low scalability of equipment as significant barriers to HACCP adoption (Fotopoulos et al., 2009).

The study revealed that the perceived advantage was high among adopting food processing organizations that have high expectations from HACCP based system adoption.

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As research suggests, the expectations may be high related to the betterment of organizational productivity and performance (Klein & Sorra, 1996). Participants were split on their views in evaluating the impact of HACCP system on the performance of their organizations considering the influence either or positive or neutral.

It appeared that organizational characteristics including greater sizes, formalization and centralization are positively associated with HACCP adoption as the respondents from adopted FPO reported such characteristics which are consistent with other study results (Damanpour, 1991). Larger and older organizations are in a relatively beneficial role compared to smaller and younger FPO. This may be attributable to the situation that smaller and younger organizations mostly have not adopted good hygienic practices necessary for efficient adoption of HACCP system. Moreover, larger adopting organizations have greater institutional resources to meet these requirements even if they are not financially as successful as would like as reported by few. Otherwise, the adoption of HACCP system without good manufacturing practices will decrease the effectiveness of HACCP system and will increase costs to manage (Motarjemi, 2013).

Organizational age and size seem to play a supporting role in the adoption process of HACCP system. The evidence for claiming such relationship is the sole prevalence of large and mature food processing organizations that adopted the system. They have at least 15-year history of establishment and higher sizes representing the pioneers in the food industry due to the considerable role they have in the local market since Armenia gained its independence since 1991. The existing literature provides contradictory findings for the role that organizational age and size may play being engaged whether in exploration or exploitation alliances (Camisón-Zornoza, Lapiedra-Alcamí, Segarra-Ciprés, & Boronat-Navarro, 2004; Sørensen & Stuart, 2000). This finding coincides with the results of earlier research demonstrating that larger manufacturing and profit-making organizations are more engaged

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in exploration alliances due to having better access to internal resources for innovativeness, thus higher sizes of entities in terms of HACCP adoption serve as a driving force (Beckman, Haunschild, & Phillips, 2004; Damanpour, 1992; Panisello & Quantick, 2001). Larger food processing organizations are characterized with higher ages and have also past experiences in adopting ISO standards that facilitate the shift from previous practices towards adopting HACCP principles in their organizations. In the context of higher ages, the study finding is consistent with Cohen and Levinthal findings who presented that organizations with a larger knowledge base contributed more to the adoption of an innovation (Cohen & Levinthal, 1990).

Medium- and large-sized FPO are in a beneficial role compared to small FPO that due to low number of specialists and the lack of complex knowledge and expertise face difficulties in deciding to adopt HACCP system. While larger FPO included specialists from different departmental units to ensure the effective functioning of HACCP system as well as saving in hiring new staff, smaller organizations do not have specialists and moreover could not afford to hire new staff. In larger organizations, rules and procedures in organizing relevant activities are much more present compared to smaller ones. Also, the adoption of HACCP system incrementally can be facilitated in larger organizations because they have more internal resources to modify and integrate an innovation through making it compatible in the organizations (Lynn, Morone, & Paulson, 1996).

Operationalization plan refers to the formal process of how structured and systemized problems during HACCP adoption are identified and solved. It refers also how well reinforcing activities are conducted and resources are mobilized for organizing trainings, education for workforce and encouraging them to work in compliance with HACCP principles and how the organization established procedures to ensure the efficient working of HACCP system as intended.

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Initial costs for HACCP adoption has been mostly reported as a barrier by smaller organizations. In their meta-analysis study, Tornatzky and Klein demonstrated the negative relationship between high initial costs and innovation adoption rate (Tornatzky & Klein, 1982). The literature provides evidence that the adoption of HACCP system is accompanied with great investments for restructuring the organization and time investment in addition to multidisciplinary expertise (Motarjemi, 2013). It seems also crucial that the continuous improvements for adopting HACCP system differently impact the organizational adoption decisions in the context of delaying them. While participants from larger organizations saw continuity of the innovation progress as a driving force for further incremental changes, the same factor presents as a barrier for smaller organizations because it requires continuing cost. This finding is consistent with Brown's findings (Brown, 1981, page 158). The costs of wastage would be reduced in the long term.

Slack resources include excess time, information, financial, technological, and human resources available to an organization beyond what operations are implemented (Nohria & Gulati, 1996). The relationship between slack resources and organizational innovativeness has been examined by many scholars (Damanpour, 1991; Nohria & Gulati, 1996). Nohria and Gulati argued that the presence of too much slack or too little slack are barriers for organizational innovativeness (Nohria & Gulati, 1996). They showed that larger organizations with intermediate level of slack were more capable of taking risks and absorbing likely failure, and therefore, its presence was a driving force for innovativeness (Nohria & Gulati, 1996). On the other hand, for smaller organizations little slack served as a barrier to innovativeness (Nohria & Gulati, 1996).

The offered curvilinear relationship between reported slack and innovativeness seems to be compliant with the HACCP system adoption in food processing entities from which larger organizations with an optimal slack adopted or made a decision to adopt it. When

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asked about resources needed to adopt HACCP system, participants from smaller and remote areas reported it as being great barrier for their organizations. Few organizations have adopted the HACCP based system into their establishments that are innovators in their field. Meanwhile, smaller organizations due to too little slack utilize their current slack resources to meet performance objectives instead of innovating which is compliant to the Bourgeois view (Bourgeois, 1981). For small food processing organizations, too little slack was reported as a great barrier to the HACCP based system adoption.

Network analysis has been used in public health for exploring the meanings and the processes behind structural and relational aspects of interorganizational networks and understanding why interorganizational networks produce certain outcomes (Luke & Stamatakis, 2012). The term network under this study refers to Valente's definition accepted in diffusion research (Valente, 1996). Many diffusion studies have not properly considered how the diffusion and adoption of an innovation was affected by the social structure along with limited literature on whole interorganisational networks (Provan, Fish, & Sydow, 2007; Valente, 2010). As Katz noticed, the exploration of diffusion requires a rudimentary knowledge of the social structures, otherwise, it would be the same as spending time to learn about blood flow without having proper knowledge about the structure of veins and arteries (Deroïan, 2002; Valente, 2010).

This study was concerned with actually existing relations between organizations in the context of information flow and competition flow that can support or hinder the diffusion of an innovation (Hollstein, 2011). Flows are usually not measured and they can be reasonably inferred from the data (Borgatti, Mehra, Brass, & Labianca, 2009). The flow of knowledge is instrumental in the process of diffusion (Rogers, 2003). The presence of passive recipients of new information hinders the diffusion process who are present in the network map (Powell, Koput, & Smith-Doerr, 1996). The presence of competition flow to adopt HACCP system

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can also be a promoting factor. However, the competition flow was identified only among larger FPO. Qualitative network analysis is sensitive to certain issues of connectivity, systematicity and dependence (Brandes, Robins, McCranie, & Wasserman, 2013).

The results of this study identified the presence of external sources for knowledge acquisition that presented a driving force for the adoption of HACCP system as it can help adopters to achieve and sustain innovation. The study showed that high performing organizations had a positive impact on other organizations in the field. The most reported responses to the question "How did you learn about HACCP system for the first time?" were reported trainings conducted by certain organizations which were perceived as main sources of information to adopt (Figure 9). However, their role has been reported as small in remote areas.

While the boundaries of the network were defined in this study, the boundaries imposed by informants themselves were also considered for further analysis. These boundaries can represent impediment to the flow of complex knowledge across interorganizational boundaries (Sorenson et al., 2006). With openly formulated questions and a network map provision in which likely actors were mentioned, the student investigator compelled informants to reflect on all relevant actors and the relations of interest between them. The presence of structural holes constrains the diffusion of an innovation and organizations need to bridge them to connect isolated FPO to the interorganizational network for knowledge sharing (Ahuja, 2000; Burt, 1992). In this context, the role of policy makers is vital especially for FPO found in regions.

This study showed the importance of external determinants in the adoption of HACCP system which is consistent with the existing literature (Mortimore & Wallace, 2013). Interorganizational norms played an instrumental role in the diffusion of innovation among

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organizations (Abrahamson, 1991). Resistance to change may be explained by the lack of value compatibility which was reported as a major barrier everywhere.

Formal training of organizational staff and managers along with professionalization are promoting factors in creating the institutional atmosphere with shared social norms (Meyer & Rowan, 1977). Institutional researchers have argued that organizations through networks tend to replicate the experience of other organizations (Guler, Guillén, & Macpherson, 2000). In uncertain and complex environments, organizations replicate innovation from others to reduce potential risks (Lieberman & Asaba, 2006). Another factor identified in the study included legitimacy enhancement inherent in the literature (Deephouse, 1999; Dimaggio & Powell, 1983).

There are many organizations that have a license for introducing HACCP system to food processing organizations. Certain agencies were popular among organizations that offered relatively affordable conditions for adoption. However, the need for enhancing the quality of the services and the contribution in adoption process from these agencies was underlined by the interviewees. Particularly the need for experts with advanced competences for ensuring guidance was highlighted that was a barrier reported in the literature (Wallace, Holyoak, Powell, & Dykes, 2014).

Some adopted entities that were export-oriented organizations considered HACCP adoption to have positive influence on their performance. Meanwhile, adopted organizations producing for local market consider the adoption of HACCP system having neutral influence on their performance. These concerns might be explained to the fact that such organizations neither increased their local market share nor entered into the international market. Even so, this implies that organizations have to go through gradual process, otherwise, unveiling overambitious plans relative to HACCP adoption may result in disappointment (WB, 2007a, page 63).

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Moreover, this requirement by law is not market-driven as they did not feel major concerns from the general public to implement consumer-oriented practices such as HACCP system. Of course these are challenges for many transition countries, but the governmental authorities in addition to greater support to such organizations should also manage in explaining that existing food safety practices will not be applicable in the near future due to the changing environment and requirements provided by the international organizations whose member is Armenia.On the other hand, young and small organizations from remote areas did not make an adoption decision. They mainly have worked without internationally accepted standards rather than keeping the basics of food safety demands required by the law. The lack of such experience may hamper the adoption of advanced HACCP based food safety management system in these organizations.

Also, perceived high environmental threat may serve as a driving force for organizations to deploy slack resources toward exploration in case an environment greatly threatens ongoing and long-term performance of their entities (Voss, Sirdeshmukh, & Voss, 2008). This factor seems play positive role in the decision making process to adopt HACCP system in organizations that as participants mentioned has been emphasized since Armenia jointed the Eurasian Economic Union (EEU) in 2015. Meanwhile, for early adopted organizations producing and exporting dairy products such as ice cream and cheese to western countries, the requirements by the Modernization act, General Food Law played great role for export FPO to adopt HACCP system. In conjunction with perceived high environmental threat, the adoption decision in organizations was promoted also by the factor called a performance gap in literature. In addition, these results suggests that during agenda-setting stage, food processing organizations also decided to incorporate HACCP based system into their daily routine as discrepancies between the expectations of their organizations and actual performance was identified. However, for addressing their

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organizational problems through HACCP adoption was more successful in larger organizations than in smaller ones. In the latter case, participants reported having problems due to slack resources of their organizations.

Low awareness of consumers was reported in the literature as a barrier found in this study (Jin, Zhou, & Ye, 2008). Meanwhile, consumer pressure has been identified as strong predictor for HACCP adoption (Fotopoulos et al., 2009). Respondents mostly reported that the stimulus for adopting HACCP came from increasing exporting opportunities and ensuring legal compliance with the Food Safety Law. Participants rarely mentioned that the adoption of HACCP had also an intention to improve public health and better protect consumers from undesirable consequences of unsafe food. The study showed that FPO are more vulnerable to coercive forces that played an instrumental role in adopting HACCP system into the food industry of Armenia. Other forces including high environmental uncertainty and ongoing professionalization also had a vital role in the process of adoption.

The successful adoption of HACCP system in FPO is a step towards improving FSMS in Armenia. The consideration of other building blocks inherent in the FSMS such as policies on food safety, inspection services, food-testing laboratory services, FBD surveillance, education and communication are also vital for having efficient FSMS (FAO & WHO, 2005). The literature ensure evidence that the challenge relative to HACCP adoption for smaller organizations is acknowledged to be rife due to lack of institutional resources (Motarjemi, 2013). Innovative food safety practices pushed by Western markets represent many challenges for FPO especially from developing countries (Trienekens & Zuurbier, 2008). Armenia is taking initiatives to meet the international requirements.

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7.1 Study Implications

Being able to understand how the organizations perceive the attributes of an innovation would be an important step towards meaningfully adjusting communication about an innovation in an effort to conduct more efficiently designed dissemination interventions to facilitate the adoption of innovative food safety management system.

7.1.1. Implications for Practice

Organizations seeking to diffuse an innovation into the food industry can have more success through considering identified barriers and drivers concerning to the HACCP adoption. Taking into consideration these factors in designing more effective dissemination methods can enhance the likelihood of an innovation to be positively perceived, implemented and confirmed by organizations helping them to avoid costly missteps. In general, adoption can be viewed as a problem-solving process that organizations pass through different stages.

7.1.2. Implications for Policy

Despite government policies support the uptake of HACCP adoption along with promoting efforts for developing dissemination infrastructure directed to increase its implementation, the challenges of HACCP adoption for many FPO still persist. Its incorporation into a food system as a complex adaptive system is related to substantial risks of failure. Armenia is not the only country that faces challenges on the pathway of incorporating this system into the food system which has been reported elsewhere.

To reduce these risks, the broader understanding of adoption processes and subsequent steps will be of great help. The findings from this study might be useful to policy makers for better understanding the perceived determinants that may impact the HACCP based system diffusion and adoption processes in FPO and contextualize them in accordance

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with practical needs. On the other hand, study findings also help to substantiate the view that a simplistic situational analysis and succeeding efforts to launch an innovation without sufficient adaptation to the setting may engender resistance to the policies or unexpected consequences (Sterman, 2000). Fullan argues that governmental authorities who are the leaders of change should simultaneously ensure accountability, incentives in terms of balanced pressure and support, and promote capacity building to enforce greater conformity for accomplishing successful change projects (Fullan, 2007). It is important to move forward keeping "systems thinking" approach in designing efficient strategies and improving existing ones (Sterman, 2000). Social network approach will also help to frame diffusion strategies effectively to engage FPO from remote areas. The interorganizational network perspective can be useful in designing and assessing different dissemination strategies.

7.1.3. Implications for Research

The adaptation of DOI for HACCP adoption requires from future research empirically investigating identified barriers and drivers through conducting a deductive quantitative study. The application of Roger's framework and the institutional theory to HACCP adoption will contribute to innovation research. Future research should also try extending the scope of HACCP system implementation to other fields of the food industry. Moreover, researchers can select certain FPO having HACCP system in place and conduct a study to identify determinants within each stage of adoption of innovation as suggested by Rogers. The existing research have paid little attention for looking at HACCP adoption as a process (Damanpour, 1987). Further research can be also conducted to evaluate the effectiveness of HACCP adoption in FPO.

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7.2. Study Strengths

The study has a number of strengths. One of study strengths is that it is implemented at a very early stage of adoption that precludes the possibility of predetermined perceptions of an innovation attributes based on the adoption or rejection rather than it will catch actual processes happening behind the diffusion of innovation (Kapoor et al., 2014). Next, the sampling frame was purposeful including participants with diverse backgrounds in different settings to ensure advanced representativeness. The sample was diverse in several characteristics including age, gender, region, experience, etc. The study employed consistently the developed interview guide, audio-typed the interviews for full transcription. The study utilized theoretical frameworks to ensure rigor through structured coding and data analysis. The high response rate also was one of the study strengths. Taking into consideration the fact that the study considered viewpoints of policy makers, decision makers, the results relevant to the dairy industry could be used in a broader context generalizing them to other fields of food industry that were required by law to adopt HACCP system.

7.3. Study Limitations

Certain limitations were acknowledged in this study. Only one representative of top management from each FPO provided data which was self-reported by its nature. The involvement of all top managers would be the most effective method for ensuring highest objectivity of this study. The study examined the perspectives of top managers in understanding the barriers and facilitators focusing on organizational level, not at the individual level. At the same time, not all organizations representing the field of food industry were involved in the study for interorganizational network analysis. The study was a cross-sectional in nature that could not allow demonstrating the reported determinants at each stage of adoption process.

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7.3. Taking the Basic Steps to Make an Innovation Happen

According to exports involved in the food industry and who participated in this study in order for HACCP system to be widely adopted the following strategies are proposed;

-Training food safety inspectors towards shifting their role from product-based checking and top-down supervision to risk-based inspections and HACCP system adoption verification in FPO with much advisory role,

-Governmental authorities should consistently conduct formal meetings for FPO to share the experiences and difficulties with HACCP adoption to promote overall connectivity,

-Provide different level trainings based on the stage of decision for matching to the various needs of FPO including not only executive managers but also employees,

-In organizations from remote areas there is a need to simplify the adoption processes for mitigating its complexity and providing the experience of adopted organizations to clarify the applicability to those organizations,

- The existing options of smaller organizations are necessary to consider more thoroughly by the governmental authorities in the context of HACCP adoption. The Lithuanian experience may serve as a good example for Armenia. That is, all Lithuanian food processing organizations implemented HACCP system but in different levels. Larger organizations adopted the system entirely while smaller organizations have been introduced with simplified options based on HACCP principles (WB, 2007a, page 40).

-Besides focusing on how to impact the HACCP adoption through regulation and control, policy makers should also increase the role of research in understanding barriers of how FPO and HACCP work better. The policy makers who influence HACCP adoption decisions in FPO must provide more specific and clearer policies,

-The presence of operationalization plan in FPO should be always in place to lead the adoption process,

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- For their supportive suggestions and improvements staff members need to be rewarded to emphasize the behavior required from other staff to reach the critical mass within the organization,

-Advance the web resource with information of HACCP system adoption and convene virtual meetings with FPO representatives found in regions for providing maximum flexibility and creating an enabling environment,

-Conducting media campaigns on the role of HACCP system in enhancing food safety and protecting public health,

-Governmental authorities should involve food specialists with various backgrounds from FPO in the decision-making processes to come up with general consensus,

-Developing epidemiological surveillance and monitoring systems along with guidelines to carry out investigations for estimating foodborne diseases to set food safety objectives. Established by the US Department of Health and Human Services as a nationwide health promotion and disease prevention initiative, Healthy People 2020 provides striking examples of public health objectives on food safety which are often absent in current regulations (HHS, 2014),

-Adapting or developing a reliable inspection procedure for food safety inspectors to verify the functioning of the overall HACCP system in FPO (Luning et al., 2008),

-Governmental authorities could require from FPO the implementation of the prerequisite programs to HACCP adoption then to come up with HACCP adoption in those organizations that do not have yet,

-Shifting national system of GOST standards accepted only in the Commonwealth of Independent States countries to the SPS standards accepted by WTO.

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7.4. Concluding Remarks

This study sought to provide a comprehensive understanding of the perceived determinants inherent in the ongoing organization-wide diffusion and adoption of HACCP system. The study provided a constellation of five main themes with a structured matrix of barriers and drivers including perceived attributes of HACCP based food safety management system, communication channels, organizations, interorganizational network and the external environment. Rogers' diffusion of innovation theory and the Institutional theory were found to be well suited for exploring determinants to understand organizational adoption behavior in the context of HACCP adoption.

The promotion of HACCP diffusion and adoption processes in food processing organizations remains instrumental for enhancing the quality and efficiency of the food system in Armenia. This study revealed that micro, small and medium sized companies should overcome more barriers for adopting HACCP system compared to large sized companies. Economic constraints including high initial costs and continuous investments have been reported as major barriers. Behavioral barriers as reported by participants at the staff level included negative attitudes of organizational staff and their resistance to change and at the managerial level entailed the misunderstanding, attribute gap and sense of disenchantment. Organizational barriers included inappropriate infrastructural capacity, low scalability of equipment and laboratory supplies, lack of prerequisite programs were mentioned as barriers. The interorganizational network map visually showed the existing flows of information and competition among FPO. For each domain a numer of drivers have been reported. Despite the difficulties gains in protecting public health, decreased recalls of food products and enhanced opportunities for exporting are fundamental justifications for HACCP adoption. The study suggests recommendations of how to facilitate the diffusion and adoption processes while trying to dovetail HACCP system into the food system of Armenia.

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LIST OF APPENDICES

Appendix 1: List of Key Terms and Definitions

Critical Control Point- A step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level (CAC, 2009)

Diffusion of Innovation (DOI)- The process by which an innovation is communicated through certain channels over time among members of social system

Disability Adjusted Life Year (DALY)- A measure that combines the years of life lost due to premature death and the years lost due to disability from a disease or condition, for varying degrees of severity, making time itself the common metric for death and disability. One DALY is a health gap measure, equating to 1 year of healthy life lost (Torgerson et al., 2014)

GOST (gosudarstvennyy standart)- The system of technical standards maintained by the Euro-Asian Council for Standardization, Metrology, and Certification (EASC), a regional standards organization operating under the auspices of the Commonwealth of Independent States (CIS) (WB, 2007a, page 105)

Food- Any substance, whether processed, semi-processed or raw, which is intended for human consumption, and includes drink, chewing gum and any substance which has been used in the manufacture, preparation or treatment of "food" but does not include cosmetics or tobacco or substances used only as drugs (FAO & WHO, 2014)

Food chain- sequence of the stages and operations involved in the production, processing, distribution, storage and handling of a food and its ingredients, from primary production to consumption

Foodborne diseases (FBD)- Can be defined as diseases commonly transmitted through ingested food. FBD comprise a broad group of illnesses caused by microbial pathogens, parasites, chemical contaminants, and biotoxins (Torgerson et al., 2014)

Food Safety- Prevention of health risks associated with contaminated food

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Food Safety Management System- A set of interacting processes designed to function together to fulfill food safety objectives (Newslow, 2014)

Food safety risk- The likelihood of harm to health resulting from exposure to hazardous agents in the food supply (IOM, 2010)

Food Safety Hazard- A biological, chemical, or physical agent in or condition of food with the potential to cause an adverse health effect (IOM, 2010)

Food system- An independent network of stakeholders (companies, financial institutions, public and private organizations) localized in a given geographical location (region, state, multinational region), participating directly or indirectly in the creation of a flow of goods and services geared towards satisfying the food needs of one or more groups of consumers, both locally and outside the area considered

Risk analysis- A process consisting of three components: risk assessment, risk management, and risk communication (Motarjemi, 2014)

Risk assessment- A scientifically based process consisting of the following steps: hazard identification, hazard characterization, exposure assessment, and risk characterization (Motarjemi, 2014)

Risk communication- The exchange of information and opinions concerning risk and risk-related factors among risk assessors, risk managers, and other interested parties, stakeholders, and the public (IOM, 2010)

Risk management- The activities undertaken to control risk (IOM, 2010)

Risk-based food safety system- A systematic means by which to facilitate decision making to reduce public health risk in light of limited resources and additional factors that may be considered (IOM, 2010)

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Hazard Analysis- the process of colleting and evaluating information on hazards and conditions leading to their presence to decide which are significant for food safety and therefore should be addressed in the HACCP plan

Hazard Analysis and Critical Control Points (HACCP)- A management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement, and handling, to manufacturing, distributing, and consumption of the finished product (FDA, 2014)

Sanitary and phytosanitary (SPS) measures- Any measure applied to protect human, animal, and plant health or life from risk arising from the entry, establishment, or spread of a hazard (WB, 2007a, page 107)

Social network- A pattern of friendship, advice, communication or support which exists among members of a social system (Valente, 1996)

Structural hole- A gap in the social network between two actors that can be spanned or is spanned by another actor (Burt, 1992)

Qualitative Network Analysis- Asks about meanings and processes behind the relations (page 212)

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Appendix 2: Informed Consent Form (English version)

American University of Armenia
Հայաստանի Ամերիկյան Համալսարան

Institutional Review Board #1
Committee on Human Research

40 Marshal Baghramyan Ave., Yerevan 0019, Republic of Armenia

Informed Consent Form

This informed consent form is for food safety managers representing the food processing sector, decision-making institutions of the field and industrial organizations implementing food safety enhancement programs in Armenia and who we are inviting to participate in research titled "Towards understanding diffusion barriers and drivers to organizational adoption of innovative food safety management system in Armenia: Qualitative Analysis".

This Informed Consent Form has an Information Sheet to share details about the study with you

You will be given a copy of the full Informed Consent Form to keep for your records

Information Sheet

Introduction
You are being invited to take part in a research study. Before you agree, the student investigator will present you about the purposes, procedures, duration, any reasonably foreseeable risks, discomforts, and benefits of the research and how confidentiality will be maintained. The student investigator's name is Suren Galstyan who is studying in the Master of Public Health program at the American University of Armenia (AUA). We are doing research on identifying barriers and facilitators to innovative food safety management system implementation in food processing sector of Armenia.
You will be provided with necessary information and invited to be part of this research. You do not have to decide today whether or not you will participate in this research. Before you decide, you can talk to anyone you feel comfortable with about the research. This consent form may contain words that you do not understand. Please ask the student investigator to stop as you go through the information and he will take time to explain. Questions are provided below for the purposes to elucidate your understanding. You will be provided with contacts in case you have questions later.

Purpose of the research
The purpose of this research is to develop an in-depth understanding of the potential factors associated with innovative food safety management system adoption in the food processing sector of Armenia.

Participant Selection

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You are being asked to participate in this research because we feel that your experience in the field of food safety can contribute much to our understanding and knowledge of discovering factors impacting the innovative food safety managemnt adoption. We believe that you can help us by telling us what you know about food safety management system and food safety practices in general. We want to learn what food processing companies experience during innovative food safety management system adoption. We also want to learn about different ways that food processing companies consider could fasten the adoption because this knowledge might help us to learn how to better implement innovative food safety management system in Armenia.

- ***Example of question to elucidate your understanding:*** *Do you know why you are being asked to take part in this study? Do you know what the study is about?*

Duration
If you agree to be part of the research study, you will be asked to participate in one face-to-face interview. The interview should take about half an hour to complete. Overall, the research takes place over six months.

Procedures
You will be asked to participate in an interview with Suren Galstyan who will answer your questions about the research that you might have. The discussion will take place at the location of your choice, and no one else but the people who take part in the discussion will be present during your interview or focus-group discussion. The discussion topics will include questions about your organization's experiences related with innovative food safety management system adoption. These are the types of questions you will be asked. You will be given time to share your knowledge. The entire discussion will be tape-recorded based on your agreement not to miss any information or field noted.

- ***Examples of question to elucidate your understanding:*** *If you decide to take part in the study, do you know how much time will the interview take? Where will it take place? Do you know that the interview will be tape-recorded?*

Voluntary Participation
Your participation in this research is voluntary, and you will not be penalized or lose benefits if you refuse to participate or decide to stop.

- ***Examples of question to elucidate your understanding:*** *Do you know that you do not have to take part in this research study, if you do not wish to? If you agree to take part, do you know if you can stop participating?*

Risks
There are no known risks to you resulting from your participation in the study. However, there is a risk that you may share some information by chance, or that you may feel uncomfortable talking about some of the topics. We do not wish for this to happen. You do not have to answer any question if talking about them makes you uncomfortable. You may say so during the interview and the interviewer will move on to the next question.
Benefits

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While you may not receive a direct benefit from participating in this research, some people find sharing their perspectives to be a valuable experience. There will be no financial compensation or other benefits from participating in this study, but your participation is likely to help us find out more about how to better implement innovative food safety management system in the food processing sector of Armenia.

Confidentiality

The information either recorded or field noted is confidential and no one else except research team will have access to the information documented during your interview or focus group discussion. To keep your information safe, the audiotapes and notes will be placed privately in a locked box at the university until a written word-for-word copy of the discussion will be created in the form of transcripts. As soon as this process is complete, the tapes will be destroyed within six months while the transcripts would be kept. To ensure confidentiality, your real name will not be used in the written copy of discussion. Any information about you will have a number on record instead of your name. The student investigator will enter study data on a computer that is password-protected and special coding of the data will be used to protect the information. We plan to publish the results of this study, but will not include any information that would identify you. What you say will contribute to this project and will be put together with what is said by other participants. Quotes from what you say may be used in reporting the final project findings but will not be identified by your name or any other personal and identifiable information. It will not be possible to detect individuals when reading reports from the study. The researchers plan to keep this study data indefinitely in the form of transcripts for future research.

- ***Example of question to elucidate your understanding:*** *Did you understand correctly the benefits and risks that you will have if you take part in the study? Did you understand the procedures that will be used to make sure that any information that researchers collect about you will remain confidential?*

Right to Refuse or Withdraw

You do not have to take part in this research if you do not wish to do so. You may refuse to answer any question or stop the interview at any time.

Who to Contact

If you have any questions regarding this study you can contact Professor Tsovinar Harutyunyan at (+37460) 61 25 60.

If you have any questions about your rights as a study participant, please contact AUA Human Subject Protection Administrator Dr. Kristina Akopian at (+37460) 61 25 61.

- ***Example of question to elucidate your understanding:*** *Do you know that you may not respond to the questions that you do not wish to respond to? Do you know that you have been given the contact details of the person who can give you more information about the study?*

The above information about the research study has been described to you orally. You can ask any more questions about any part of the research study, if you wish to. Do you have any questions? Do you agree to participate in this research study? If yes, do you agree recording?

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Appendix 3: Informed Consent Form (Armenian version)

American University of Armenia
Հայաստանի Ամերիկյան Համալսարան

Գիտահետազոտական էթիկայի թիվ 1 հանձնաժողով

Մարշալ Բաղրամյան պող. 40 շենք, 0019, Երևան, Հայաստանի Հանրապետություն

Իրազեկ համաձայնության ձև

Տվյալ իրազեկ համաձայնության ձևը նախատեսված է սննդի անվտանգության մասնագետների համար, որոնք ընդգրկված են սննդի վերամշակման ձեռնարկությունների, ոլորտում որոշում կայացնողների և սննդի անվտանգության բարելավմանն ուղղված ծրագրեր իրականացնող կազմակերպությունների աշխատանքներում, և որոնց մենք հրավիրում ենք մասնակցելու հետևյալ թեմայով հետազոտությանը «Հայաստանում կատարելագործված սննդի անվտանգության կառավարման համակարգի ներդրման խոչընդոտների և նպաստող գործոնների որակական ուսումնասիրություն»:

Տվյալ իրազեկ համաձայնության ձևը ընդգրկում է հետազոտության վերաբերյալ Ձեզ իրազեկելու համար տեղեկատվական թերթիկ:

Ձեզ կտրվի իրազեկ համաձայնության ձևի կրկնօրինակը:

Տեղեկատվական թերթիկ

Նախաբան

Դուք հրավիրված եք մասնակցելու հետազոտական ուսումնասիրությունում: Ձեր համաձայնությունից առաջ, հետազոտողը պետք է Ձեզ տեղեկացնի հետազոտության նպատակների, ընթացակարգերի, տևողության, որևէ կանխատեսելի ռիսկի, անհանգստության ու օգտի մասին, և ինչպես կպահպանվի ինֆորմացիայի գաղտնիությունը: Հարցազրույցի անցկացման պատասխանատուն է Սուրեն Գալստյանը, ով սովորում է Հայաստանի Ամերիկյան Համալսարանի (ՀԱՀ) Հանրային Առողջապահության բաժնում: Մեր բաժինն իրականացնում է հետազոտություն, որի նպատակն է հասկանալ Հայաստանում կատարելագործված սննդի անվտանգության համակարգերի ներդրման խոչընդոտները և նպաստող գործոնները սննդի վերամշակման ընկերություններում:

Ձեզ կտրամադրվի անհրաժեշտ ինֆորմացիան և Դուք կհրավիրվեք մասնակցելու այս հետազոտությանը: Դուք ստիպված չեք այսօր որոշելու կմասնակցեք հետազոտությանը թե ոչ: Դուք կարող եք խոսել հետազոտության վերաբերյալ ցանկացած անձի հետ, որին հարմար եք համարում մինչ կկայացնեք որոշում: Իրազեկ համաձայնության ձևը հնարավոր է պարունակի բառեր, որոնց Դուք գուցե ծանոթ չլինեք: Նման դեպքերում Դուք կարող եք պարզաբանել ցանկացած անծանոթ հասկացություն, որին կհանդիպեք և այն կպարզաբանվի: Ներքոհիշյալ

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հարցերը տրամադրված են Ձեր տեղեկատվության ամրապնդման նպատակով: Ձեզ կտրամադրվեն կոնտակտային տվյալներ, եթե Դուք կունենաք լրացուցիչ հարցեր:

Հետազոտության նպատակը

Հետազոտության նպատակն է ուսումնասիրել այն գործոնները, որոնք ազդում են կատարելագործված սննդի անվտանգության համակարգի ներդրմանը Հայաստանյան սննդի վերամշակման ընկերություններում:

Մասնակիցների ընտրություն

Դուք հրավիրված եք մասնակցելու այս հետազոտությանը, քանի որ մենք կարծում ենք որ Ձեր անձնական փորձը սննդի անվտանգության ոլորտում կարող է մեծապես նպաստել ձևավորելու պատկերացում սննդի անվտանգության համակարգի ներդրման վրա ազդող գործոնների վերաբերյալ: Մենք հավատում ենք, որ Դուք կարող եք օգնել մեզ՝ ներկայացնելով Ձեր կողմնորոշումները սննդի անվտանգության կառավարման համակարգի վերաբերյալ և սննդի անվտանգության եղանակների կիրառությունների վերաբերյալ ընդհանուր առմամբ: Մենք ցանկանում ենք հասկանալ ինչ փորձառությունների են բախվում սննդի վերամշակման ընկերությունները սննդի անվտանգության կառավարման համակարգի ներդրման ընթացքում: Միևնույն ժամանակ մենք ուզում ենք հասկանալ, ինչ տարբեր գործոններ կարող են արագացնել համակարգի ներդրումը սննդի վերամշակման ընկերություններում:

- ***<u>Հարցի օրինակ պարզաբանման համար:</u>*** *Դուք տեղյա՞կ եք ինչ նպատակով են Ձեզ դիմել հետազոտությանը մասնակցելու համար: Դուք տեղյա՞կ եք ինչ նպատակ ունի հետազոտությունը:*

Տևողություն

Եթե Դուք համաձայնվեք մասնակցել այս հետազոտությանը, Ձեր մասնակցությունը կսահմանափակվի մեկանգամյա երես առ երես հարցազրույցով, որը կտևի առավելագույնը 1.5 ժամ: Հետազոտության տևողությունը ընդհանուր առմամբ կազմում է 6 ամիս:

Ընթացակարգեր

Դուք կհրավիրվեք մասնակցելու հարցազրույցի Սուրեն Գալստյանի հետ, ով կպատասխանի հետազոտության վերաբերյալ Ձեր հարցերին: Հարցազրույցը տեղի կունենա Ձեր նախընտրած վայրում, որի ընթացքում միայն հարցազրույցի մասնակիցների ներկայությունն է անհրաժեշտ: Քննարկման առարկա հանդիսացող հնարավոր հարցերի շարքը ընդգրկում է Ձեր ընկերության փորձը կատարելագործված սննդի անվտանգության համակարգ ներդնելու ընթացքում: Հարցերը պատասխանելու համար Ձեզ կտրվի ժամանակ: Ձեր թույլտվությամբ ամբողջ հարցազրույցը կձայնագրվի՝ տեղեկատվություն բաց չթողնելու նպատակով:

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- ***<u>Հարցի օրինակ պարզաբանման համար:</u>*** *Եթե որոշեք մասնակցել հետազոտությանը, Դուք տեղյա՞կ եք ինչքան ժամանակ է անհրաժեշտ հարցազրույցի համար: Դուք տեղյա՞կ եք անցկացման վայրի մասին: Դուք տեղյա՞կ եք, որ ամբողջ հարցազրույցը ձայնագրվելու է:*

Կամավոր մասնակցություն

Այս հետազոտությունում Ձեր մասնակցությունը կամավոր է, և Ձեզ ոչինչ չի սպառնում, եթե մերժեք մասնակցել կամ վճռեք դադարեցնել Ձեր մասնակցությունը:

- ***<u>Հարցի օրինակ պարզաբանման համար:</u>*** *Դուք տեղյա՞կ եք, որ պարտավորված չեք մասնակցելու այս հետազոտությանը, եթե ցանկություն չունեք: Եթե համաձայնվեք մասնակցել, արդյոք ունե՞ք հնարավորություն դադարեցնելու Ձեր մասնակցությունը:*

Ռիսկեր

Դուք չեք դիմում ոչ մի ռիսկի մասնակցելով այս հետազոտությանը: Այնուամենայնիվ, կա ռիսկ, որ Դուք գուցե պատահականորեն հաղորդեք այնպիսի տեղեկություն, որի վերաբերյալ նպատակահարմար չեք համարում խոսել: Դուք պարտավորված չեք պատասխանելու նման հարցերի և կարող եք տեղեկացնել հարցազրույց վարողին:

Օգուտներ

Մինչդեռ Դուք գուցե չունենաք ուղղակի օգուտ այս հետազոտությանը՝ Ձեր մասնակցությունից, շատ մասնակիցներ համարում են նմանատիպ հարցազրույցները իրենց փորձի հաղորդման արժեքավոր եղանակ: Դուք չեք ստանալու որևէ պարգևատրում հետազոտությանը մասնակցելու դեպքում, սակայն Ձեր անկեղծ պատասխանները կօգնեն հասկանալ, թե ինչ խոչընդոտների և նպաստող գործոններ են առկա՝ կատարելագործված սննդի անվտանգության համակարգ ներդնելու ընթացքում:

Ինֆորմացիայի գաղտնիություն

Ձեր կողմից տրամադրված տեղեկատվությունը համարվում է գաղտնի, որին կողմնակի անձ չի կարող մուտք ունենալ, բացի հետազոտական խմբի անձնակազմից: Ինֆորմացիան անվտանգ պահելու համար այն կպահպանվի ՀԱՀ գտնվող փակ խցիկում այնքան ժամանակ, մինչև հարցազրույցի գրավոր, բառ առ բառ թարգմանված օրինակը՝ վերծանումը կլինի պատրաստ: Այս գործընթացը կտևի առավելագույնը վեց ամիս, որից հետո ձայնագրությունները կոչնչացվեն, իսկ վերծանումները կպահպանվեն առանց Ձեր անունը կամ անձնական այլ տեղեկատվություններ նշելու: Էլեկտրոնային տարբերակի անվտանգությունը կպահպանվի գաղտնաբառ պահանջող համակարգչի և տվյալների հատուկ կոդավորման միջոցով: Ձեր կողմից տրամադրված տեղեկատվությունն օգտագործվելու է միայն այս հետազոտության շրջանակներում, և միայն ընդհանրացված տվյալներն են ներկայացվելու զեկույցում: Ձեր հարցազրույցից վերցված մեջբերումները կարող են օգտագործվել հետազոտության վերջնական արդյունքները պարունակող զեկույցում՝ չնշելով Ձեր անունը կամ անձնական այլ

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տվյալներ: Արդյունքերը նախատեսված են հրապարակման համար միայն ամփոփ տեսքով, որն անհնար է դարձնում բացահայտել տեղեկատվությունը տրամադրող անձի ինքնությունը:

- ***<u>Հարցի օրինակ պարզաբանման համար:</u>*** *Դուք հասկացե՞լ եք այն ընթացակարգերը, որոնք պետք է օգտագործվեն Ձեր հարցազրույցի տեղեկատվության գաղտնիությունը ապահովելու համար:*

Մասնակցությունից հրաժարվելու իրավունք

Դուք կարող եք հրաժարվել պատասխանել ցանկացած հարցի կամ ընդհատել հարցազրույցը ցանկացած պահի:

Կոնտակտային տվյալներ

Այս հետազոտության վերաբերյալ լրացուցիչ հարցեր ունենալու դեպքում կարող եք զանգահարել հետազոտության պատասխանատու՝ Ծովինար Հարությունյանին (+37460) 61 25 60 հեռախոսահամարով:

Եթե Դուք՝ որպես հետազոտության մասնակից, Ձեր իրավունքների վերաբերյալ ունեք հարցեր, կարող եք զանգահարել ՀԱՀ էթիկայի հանձնաժողովի քարտուղար՝ Քրիստինե Հակոբյանին (+37460) 61 25 61 հեռախոսահամարով:

- ***<u>Հարցի օրինակ պարզաբանման համար:</u>*** *Դուք տեղյա՞կ եք, որ կարող եք չպատասխանել այն հարցերին, որոնց չեք կամենում պատասխանել: Դուք տեղյա՞կ եք, որ Ձեզ տրամադրվել են կոնտակտային տվյալներ լրացուցիչ տեղեկություններ ստանալու նպատակով:*

Հետազոտական ուսումնասիրության վերաբերյալ վերոհիշյալ տեղեկությունը Ձեզ նկարագրվել է բանավոր կերպով: Դուք կարող եք հարցնել ցանկացած հարց հետազոտության վերաբերյալ: Դուք ունե՞ք այլ հարցեր: Համաձա՞յն եք մասնակցել: Եթե այո, համաձա՞յն եք, որպեսզի հարցազրույցը ձայնագրվի:

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Appendix 4: An Interview Guide for Individual Interviews and Focus Group Discussions with Food Safety Managers (English version)

Organization ID#…… Date……/……2015 (day / month)

Starting time……/…… (hours / minutes) Place of interview……

Ending time……/…… (hours / minutes) Interviewer name……

BACKGROUND INFORMATION

Organization Information

1. Name of organization ……
2. Country district ……
3. Type of agency / organization: ☐ Dairy ☐ Meat ☐ Other
4. When was the organization established? ……
5. As of Febryary 1, 2015, number of stuff in the organization: ……
6. As of February 1, 2015, number of stuff involved in managing food safety……

Participant Information

7. Department name: ……
8. Current position inside the organization:……
9. Principal area of specialization: ……
10. Work status: ☐ Fulltime ☐ part-time.....%
11. Date of birth: ……
12. Gender: ☐ Male ☐ Female

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13. Education level:

☐ Less than secondary school completed
☐ Secondary school completed
☐ A two-year college completed
☐ College / university completed (bachelor and master degrees)
☐ Post-graduate degree completed (PhD)

14. Experience at your present position:

☐< 1 year
☐1-3 years
☐3-5 years
☐> 5 years

15. Experience from the use of HACCP based food safety management system:

☐< 1 year
☐1-3 years
☐3-5 years
☐> 5 years

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THEME 1
ORGANIZATIONAL CHARACTERISTICS

Questions

Lead question 1: Could you tell me a little about your organization and your position at the organization?

Prompts: What are the key policies, strategies and action plans of importance in your organization? How does your organization go about setting goals and objectives? Tell me about a project or accomplishment that you consider to be the most significant for your organization? How does your organization get results, build team spirit, and not burn out people all at the same time? Give an example? How comfortable is your organization with risk taking in your work environment for an innovation. Why? How would your organization determine when taking a reasonable risk versus maintaining the status quo would be appropriate? Tell me about a time when something during work "fell through the cracks"? What were the circumstances? How did you handle it? What did you learn from it?

Lead question 2: I'd now like you to think about food safety in your organization. Can you tell me what procedures you carry out to avoid food safety problems arising?

Prompts: If you have a written food safety statement, what are the key points contained in it to guide the actions of employees? What does the term "HACCP based food safety management system" mean to you? What are the plans of your organization about how you are going to offer the HACCP system? Why did your organization decide to implement HACCP-based food safety management system? Who decides what kinds of food safety innovations should (or should not) be diffused and developed? What kinds of things did you think about when making that decision? What do you hope to gain from offering the system? Could you tell me your thoughts about HACCP based food safety management system?

Lead question 3: How has your organization tried to create commitment to the adoption of the HACCP system?

Prompts: What methods / procedures does your organization use to make sure that the adoption process is error free? Give me a specific example that demonstrates when you used these methods? Who is responsible for managing the food safety management system adoption in your organization? Organizations differ in their willingness and ability to transfer employees among different departments. Employees may be hired and trained to handle only specific tasks in specific departments, or they may be hired and trained to handle a variety of tasks across different departments. What philosophy characterizes your organization in this context? Please indicate the criteria for hiring employees in your organization? If you have written job descriptions, what are the key points contained in them to guide the actions of employees? What was the composition of the HACCP team or committee? What is that person's background or what kind of training does that person have? How did you provide education on the adoption of the system for the food safety professionals in your organization? How do the food safety professionals consulted to ascertain their needs for an innovation? What training has the person received in food safety since joining your organization?

Lead question 4: What are the main obstacles, if any, that have hindered the implementation of HACCP system? What are the drivers that promote the adoption of HACCP system in your organization?

> **Prompts:** When a certain department produces results which deviate from its plans from whom usually come the instructions to take appropriate corrective actions? Consider a recent project of HACCP adoption undertaken by your organization that required setting up a special task force. There may have been situations when this task forced encountered deviation from what was planned. During these situations who usually gives instructions to take corrective action? What kind of difficulties do you face telling others about the results of using HACCP? Where have you seen HACCP in use? What kind of feedback have you received from state of food safety agency? Positive or negative? What kind of feedback have you received from your consumers?

Lead question 5: What future developments of adopting food safety management system do you see within your organization?

> **Prompts:** What adjustments will you have to make to your normal operation to be able to adopt the system?

Lead question 6: Is there anything else that you would like to add regarding the food safety practices in your organization?

Answers

THEME 2
PERCEPTIONS OF THE INNOVATION

Questions

Lead question 1: What are the advantages of adopting HACCP system?

Prompts: Can you think of a time or event that made you feel really positive about HACCP system? How flexible was the HACCP system in allowing reinvention? How has the format of the HACCP system changed since its adoption? What prompted the changes?

Lead question 2: What are the disadvantages of adopting HACCP system?

Prompts: Can you think of a time when you felt particularly negative about innovative food safety management system? What are the challenges that you faced trying to adopt HACCP system in your organization? In your opinion, would you find offering the system more difficult than the other food safety practices you provide? Why? How do you feel about the amount you have invested in order to provide the system? Why has the system adoption lasted so long?

Lead question 3: How is preparing for adoption is compatible with your organization's philosophy?

Prompts: Do you consider the implementation of HACCP based system as having value for your organization? What factors have contributed to this? And how do the other employees feel about offering the system (whether it be positive or negative?).

Lead question 4: How do you think the offering of the system will impact your organization's image?

Lead question 5: How the volunteer adoption has influenced on your organization to adopt HACCP based system?

Lead question 6: Please share any additional comments about the training or thoughts about the program?

Answers

THEME 3
COMMUNICATION CHANNELS

Questions

Lead question 1: How did your organization learn about HACCP system?

Prompts: Could you talk a little about the sources that have you heard of food safety management system? How did you learn about HACCP system for the first time? After first heard about HACCP, from whom did your organization get more detailed information about it?

Lead question 2: What is the role of mass-media advertising? Is it persuading food producers to adopt innovations that they really need or that they do not need?

Lead question 3: Does your organization collaborate with universities, State Agency of Food Safety, or other organizations related to HACCP?

Prompts: How was the connection with universities established? When your organization needs information during HACCP system adoption, what are some of the barriers that prevent your organization from collaborating with other organizations? In general, what strategies have facilitated your collaboration between your organization and other organizations? What recommendations do you have to improve / enhance collaboration among organizations?

Lead question 4: In what ways do you seek perspectives to be communicated that you think should exist in an effort to help you to adopt HACCP based system?

Answers

THEME 4
INTERORGANIZATIONAL NETWORK CHARACTERISTICS

Questions

Lead question 1: Which organizations have influenced this change of policy to adopt HACCP system in your organization?

> **Prompts:** To what organizations have your organization contacted for HACCP related information since January 2014? With which of the organizations does your organization jointly operate an ongoing program for HACCP system adoption? What organizations have contacted with your organization for HACCP related information since January 2014? What are the reasons of not naming other organizations?

Lead question 2: Who usually in your organization exchanges information about HACCP system with whom in other organization?

> **Prompts:** What kind of information about HACCP system does your organization receive? What kind of information do other organizations / agencies need? Could you tell me if any of the relationships are problematic? Are there any relationships that you see missing that would be helpful to have?

Lead question 3: How strongly have other organizations influenced this change (set up influence towers accordingly)?

> **Prompts:** I see your organization has contacted this organization with many relationships? Why? Where does its influence come from? You say that these two organizations have the same level of influence. What happens if they avoid adopting HACCP? Is their influence based on the same grounds? You have linked this actor to so many others, but you say this organization does not have much influence-why is that so?

Lead question 4: Have these organizations had a positive, negative or neutral influence on your company's adoption of HACCP?

THEME 5
OTHER CHARACTERISTICS

Questions

Lead question 1: Which groups of stakeholders were the biggest drivers to come up with the decision to adopt HACCP system?

> **Prompts:** What role does Food Safety Law play fop adopting HACCP based system? Did any pressures from any group of stakeholders influence your decision to adopt HACCP system? How the entry of Armenia to Eurasian Economic Union Trade can influence on your organization performance to adopt HACCP based system?

Lead question 2: Did you look to any other organizations which have already adopted HACCP system when deciding to adopt it in your organization?

Lead question 3: What education do you feel are required to come up with the decision to adopte HACCP system in the entire industry?

Answers

Appendix 5: An Interview Guide for Individual Interviews and Focus Group Discussions with Food Safety Managers (Armenian version)

Կազմակերպության ծածկագիր…… Ամսաթիվ……/……2015
օր ամիս

Հարցազրույցի սկիզբ ……/……. Հարցազրույցի վայր……
ժամ րոպե

Հարցազրույցի ավարտ……/…… Հարցազրուցավար ……
ժամ րոպե

Ընդհանուր տեղեկություններ

Կազմակերպության նկարագրություն

7. Անվանում: ……

8. Տեղակայման վայր: ……

9. Գործունեության ոլորտ: ☐Կաթնամթերք ☐Մսամթերք ☐ Այլ

10. Հիմնադրման տարեթիվ: ……

11. Աշխատողների թվաքանակը առ 01 Փետրվար, 2015: ……

12. Սննդի անվտանգության բաժանմունքում ընդգրկված աշխատողների թվաքանակը առ 01 Փետրվար, 2015……

Մասնակցի նկարագրություն

16. Բաժանմունքի անվանում: ……

17. Կազմակերպությունում զբաղեցրած պաշտոնը: ……

18. Հիմնական մասնագիտական ոլորտ:……

19. Ժամային դրույքաչափ: ☐ Լրիվ ☐ Ոչ լրիվ……%

20. Ծննդյան տարեթիվ: ……

21. Սեռ: ☐ Արական ☐ Իգական

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22. Կրթական աստիճան:

☐ Միջնակարգ կրթությունից ցածր
☐ Միջնակարգ կրթություն (10 տարի)
☐ Միջին մասնագիտական (11-13 տարի)
☐ Բարձրագույն (ինստիտուտ / համալսարան)
☐ Ավելի

23. Աշխատանքային փորձը ներկայիս պաշտոնում:

☐< 1 տարի
☐1-3 տարի
☐3-5 տարի
☐> 5 տարի

14. Աշխատանքային փորձը ՎՎՀԿԿ սննդի անվտանգության կառավարման համակարգում:

☐< 1 տարի
☐1-3 տարի
☐3-5 տարի
☐> 5 տարի

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Թեմա 1
Կազմակերպության հատկանիշներ

Հարցեր

Հիմնական հարց 1: Կարո՞ղ եք նկարագրել Ձեր կազմակերպությունը և դրանում Ձեր ունեցած գործառույթները:

Ուղեկցող հարցեր: Ի՞նչ հիմնական գործողությունների ծրագրեր, որդեգրած ռազմավարություն ունի Ձեր կազմակերպությունը մշակված: Ինչպե՞ս են ձևավորվում Ձեր կազմակերպության նպատակներն ու խնդիրները: Կարո՞ղ եք նշել որևէ նախագիծ կամ ձեռքբերում, որը համարում եք Ձեր կազմակերպության ամենակարևոր նվաճումը: Ինչպե՞ս է Ձեր կազմակերպությունը համատեղում արդյունքների ապահովումը, պահպանում թիմային ոգին և մարդկանց աշխատունակությունը միևնույն ժամանակ: Կբերե՞ք օրինակ: Ինչպե՞ս են ընդունվում ռիսկային քայլեր պարունակող նորամուծությունների կիրառությունը Ձեր կազմակերպությունում: Ինչու՞: Ի՞նչ սկզբունքներով է Ձեր կազմակերպությունը որոշում իրականացնել կամ հրաժարվել ռիսկեր պարունակող նորամուծությունների փորձարկումից: Կարո՞ղ եք բերել օրինակ, երբ ինչ որ բան աշխատանքի ընթացքում մնացել է աննկատ: Ի՞նչ հետևանքներ են եղել: Ինչպե՞ս եք հաղթահարել: Ի՞նչ դասեր եք քաղել:

Հիմնական հարց 2: Այժմ անդրադառնանք սննդի անվտանգության կազմակերպմանը Ձեր ընկերությունում: Ի՞նչ ընթացակարգեր են կիրառվում սննդի անվտանգության հետ կապված խնդիրներից խուսափելու համար:

Ուղեկցող հարցեր: Եթե Ձեր կազմակերպությունը ունի սննդի անվտանգության վերաբերյալ հաստատված ընթացակարգ, որո՞նք են այն հիմնական սկզբունքները, որոնք ընդգրկված են դրանում: Ըստ Ձեզ, ի՞նչ է նշանակում ՎՎՀԿԿ սննդի անվտանգության կառավարման համակարգը: Որո՞նք են Ձեր կազմակերպության ծրագրերը ՎՎՀԿԿ համակարգը ներդնելու ուղղությամբ: Ինչու՞ է Ձեր կազմակերպությունը որոշել ՎՎՀԿԿ սննդի անվտանգության կառավարման համարգ ներդնել: Ո՞վ է որոշում կայացնում Ձեր կազմակերպությունում սննդի անվտանգության բարելավմանն ուղղված նորամուծությունները ներդնելու կամ դրանից հրաժարվելու վերաբերյալ: Ինչ՞ հանգամանքներ են հաշվի առնվում որոշումներ կայացնելիս: Ինչ՞ եք ակնկալում ստանալ ՎՎՀԿԿ համակարգը ներդնելուց:

Հիմնական հարց 3: Ինչպե՞ս է Ձեր կազմակերպությունը նպաստում ՎՎՀԿԿ համակարգի ներդրմանը:

Ուղեկցող հարցեր: Ի՞նչ մեթոդներ / ընթացակարգեր են կիրառվել ՎՎՀԿԿ համակարգի ներդրման անխափան ընթացքն ապահովելու համար: Ո՞վ է պատասխանատու Ձեր կազմակերպությունում ՎՎՀԿԿ համակարգի ներդրման համար: Կազմակերպություններն ունեն տարբեր մոտեցումներ իրենց աշխատակիցներին տարբեր բաժիններում աշխատելու հնարավորություն տրամադրելու հարցում: Աշխատողները գուցե կատարեն

կամ միայն սահմանված առաջադրանքներ մեկ բաժնում կամ տարբեր առաջադրանքներ տարբեր բաժիններում: Ինչ՞ գաղափարախոսությամբ է Ձեր կազմակերպությունը առաջնորդվում այս համատեքստում: Ի՞նչ գործոններ եք հաշվի առնում անձին աշխատանքի ընդունելիս Ձեր կազմակերպությունում: Եթե Ձեր կազմակերպությունը ունի գրված աշխատանքային բնութագրեր, որո՞նք են այն հիմնական սկզբունքները, որոնք ուղղորդում են աշխատողների գործողությունները: Ի՞նչ կազմից է բաղկացած ՎՎՀԿԿ թիմը: Ի՞նչ հիմնական տվյալներ կամ փորձ պետք է ունենա տվյալ թիմում ընդգրկված անձը: Ինչպե՞ս եք իրականացնում Ձեր կազմակերպությունում ընդգրկված սննդի անվտանգության մասնագետների վերապատրաստումը ՎՎՀԿԿ համակարգի ներդրման նպատակով: Ինչպ՞ս են սննդի անվտանգության մասնագետները տեղեկացվում նորարարությունների վերաբերյալ: Ինչ՞ որակավորումներ են ստացել սննդի անվտանգության աշխատողները Ձեր ընկերության աշխատանքներում ընդգրկվելուց ի վեր:

Հիմնական հարց 4: Որո՞նք են այն հիմնական խոչընդոտները, որոնք բացասաբար են անդրադառնում Ձեր կազմակերպության կողմից՝ ՎՎՀԿԿ համակարգը ներդնելուն: Որո՞նք են այն հիմնական գործոնները, որոնք նպաստում են ՎՎՀԿԿ համակարգը ներդնելուն:

Ուղեկցող հարցեր: Երբ որևէ բաժին ունեցել է այնպիսի արդյունքներ, որոնք շեղվել են հիմնական պլանային ցուցանիշներից, ո՞վ է սովորաբար հրահանգում կատարելու համապատասխան շտկումներ: Դիտարկենք ՎՎՀԿԿ համակարգի ներդրման նախագիծը Ձեր կազմակերպությունում, երբ հստակ առաջադրանքներ են տրվել կատարելու սահմանված ժամկետում: Սակայն գուցե եղել են իրավիճակներ, երբ այդ առաջադրանքները շեղվել են հիմնական պլանային ցուցանիշներց: Նման դեպքերում ո՞վ է սովորաբար հրահանգում կատարելու համապատասխան շտկումներ: Ինչ՞ դժվարություններ եք ունեցել ՎՎՀԿԿ համակարգի օգտագործման արդյունքները այլ շահագրգիռ կողմերի ներակայացնելիս: Որտե՞ղ եք տեսել ՎՎՀԿԿ համակարգը կիրառելիս: Ինչ՞ արձագանք եք ստացել Ձեր ընկերության վերաբերյալ Սննդի անվտանգության տեսչության կողմից ՎՎՀԿԿ համակարգի ներդրման վերաբերյալ (դրական / բացասական): Ինչ՞ արձագանքներ եք ստանում Ձեր սպառողների կողմից:

Հիմնական հարց 5: Ապագայում ի՞նչ զարգացումներ եք ակնկալում Ձեր կազմակերպությունում ՎՎՀԿԿ համակարգի ներդրման կապակցությամբ:

Ուղեկցող հարցեր: Ի՞նչ անհրաժեշտ փոփոխություններ է Ձեր ընկերությունը իրականացնելու՝ ՎՎՀԿԿ համակարգը ներդնելու համար:

Թեմա 2
ՎՎՀԿԿ համակարգի հատկանիշներ

Հարցեր

Հիմնական հարց 1: Ի՞նչ առավելություններ են բնորոշ ՎՎՀԿԿ համակարգին:

Ուղեկցող հարցեր: Կարո՞ղ եք հիշել այն ժամանակը կամ իրադարձությունը, որը պայմանավորեց Ձեր դրական մոտեցումը ՎՎՀԿԿ համակարգի վերաբերյալ: Ինչքա՞ն ճկուն եք համարում ՎՎՀԿԿ համակարգը Ձեր ընկերությանը ադապտացնելու և ներդնելու տեսակետից: Ի՞նչ փոփոխություններ է կրել համակարգի ձևաչափը դրա ներդրումից հետո: Որո՞նք էին պատճառները:

Հիմնական հարց 2: Ի՞նչ թերություններ են բնորոշ ՎՎՀԿԿ համակարգին:

Ուղեկցող հարցեր: Կարո՞ղ եք հիշել այն ժամանակը կամ իրադարձությունը, որը պայմանավորեց Ձեր բացասական մոտեցումը ՎՎՀԿԿ համակարգի վերաբերյալ: Ին՞չ խոչընդոտների եք առերեսվել ՎՎՀԿԿ համակարգի ներդրման ընթացքում: Ձեր կարծիքով, արդյո՞ք ՎՎՀԿԿ համակարգի ներդրումը Ձեր ընկերությունում ավելի շատ խնդիրներ կառաջացնի համեմատած այլ սննդի անվտանգության ընթացակարգերի հետ: Ինչու՞: Ի՞նչ եք կարծում, ներդրված ռեսուրսները արդարացնում են Ձեր սպասումները ուղղված ՎՎՀԿԿ համարգի ներդրմանը: Որո՞նք են համակարգի ներդրման գործընթացի ձգձգման պատճառներ:

Հիմնական հարց 3: ՎՎՀԿԿ համակարգը համահու՞նչ է Ձեր ընկերության գաղափարախոսությանը:

Ուղեկցող հարցեր: Դուք համարում եք ՎՎՀԿԿ համակարգի ներդրումը Ձեր ընկերությունում որպես արժեքավոր գաղափար թե՞ ռեսուրսների վատնում: Ի՞նչ գործոններ են ազդել նման կարծիք ձևավորելու համար: Իսկ ընկերության ա՞յլ աշխատակիցները (դրական կամ բացասական):

Հիմնական հարց 4: Ձեր կարծիքով ինչպե՞ս կանրադառնա ՎՎՀԿԿ համակարգի ներդրումը Ձեր ընկերության գործարար համբավին:

Հիմնական հարց 5: Ինչպե՞ս է ՎՎՀԿԿ համակարգի կամավոր ներդրումը անդրադառնում Ձեր կազմակերպության կողմից ձեռնարկված գործընթացի վրա:

Հիմնական հարց 6: Կարո՞ղ եք հաղորդել այլ մեկնաբանություններ համակարգի վերաբերյալ ուսուցումների անցկացման վերաբերյալ:

Թեմա 3
Հաղորդակցական ուղիներ

Հարցեր

Հիմնական հարց 1: Ինչպե՞ս է Ձեր ընկերությունը տեղեկանում ՎՎՀԿԿ համակարգի մասին:

Ուղեկցող հարցեր: Որո՞նք են ՎՎՀԿԿ համակարգի վերաբերյալ ինֆորմացիայի աղբյուրները Ձեր կազմակերպությունում: Ինչպե՞ս եք առաջին անգամ տեղեկացել ՎՎՀԿԿ համակարգի վերաբերյալ: Տեղեկանալուց հետո, ու՞մ է դիմել Ձեր կազմակերպությունը ավելի մանրամասն ինֆորմացիա ստանալու նպատակով:

Հիմնական հարց 2: Ո՞րն է լրատվամիջոցների դերը ՎՎՀԿԿ համակարգը լուսաբանելու վերաբերյալ: Արդյոք լրատվամիջոցները հորդորում են սնունդ վերամշակող ընկերություններին սննդի ՎՎՀԿԿ համակարգ ներդնելու գործընթացում:

Հիմնական հարց 3: Ձեր կազմակերպությունը համագործակցու՞մ է ուսումնական հաստատությունների, սննդի անվտանգության տեսչության կամ այլ կազմակերպությունների հետ ՎՎՀԿԿ համակարգի ներդրման կապակցությամբ:

Ուղեկցող հարցեր: Ինչպե՞ս է կազմավորվել համագործակցությունը ուսումնական հաստատությունների հետ: ՎՎՀԿԿ համակարգի վերաբերյալ տեղեկատվություն ստանալու անհրաժեշտության դեպքում, ի՞նչ խոչընդոտներ են առկա, որոնք արգելակում են Ձեր կազմակերպության համագործակցությունը այդ նպատակով: Ի՞նչ քայլեր են հեշտացնում համագործակցությունը: Ի՞նչ առաջարկներ ունեք համագործակցությունը ՎՎՀԿԿ համակարգի ներդրման նպատակով զարգացնելու համար:

Հիմնական հարց 4: Ի՞նչ հեռանկարներ կան հաղորդակցությունը մեծացնելու սննդի վերամշակման ընկերությունների հետ ՎՎՀԿԿ համակարգի ներդրումը հեշտացնելու կապակցությամբ:

Թեմա 4
Միջկազմակերպչական համակարգի հատկանիշներ

Հարցեր

Հիմնական հարց 1: Ո՞ր կազմակերպություններն են նպաստել ՎՎՀԿԿ համակարգի ներդրմանը Ձեր կազմակերպությունում:

Ուղեկցող հարցեր: Ո՞ր կազմակերպություններին եք դիմել ՎՎՀԿԿ համակարգի վերաբերյալ տեղեկատվություն ստանալու համար 2014թ.-ի հունվար ամսից: Ո՞ր կազմակերպությունների հետ ունեք համատեղ ընթացիկ ծրագիր ՎՎՀԿԿ համակարգի ներդրման համար: Ո՞ր կազմակերպություններն են դիմել Ձեր կազմակերպությանը ՎՎՀԿԿ համակարգի վերաբերյալ տեղեկատվություն ստանալու համար: Ի՞նչ պատճառներով չեք նշել այլ կազմակերպությունների անվանումները:

Հիմնական հարց 2: Ո՞վ է սովորաբար Ձեր կազմակերպությունում ընդգրկված ՎՎՀԿԿ համակարգի վերաբերյալ տեղեկատվության փոխանակման համար և ու՞մ հետ:

Ուղեկցող հարցեր: Ի՞նչ բնույթի ինֆորմացիայի կարիք եք ունեցել ՎՎՀԿԿ համակարգի վերաբերյալ: Ի՞նչ բնույթի ինֆորմացիայի կարիք են ունեցել դիմող կազմակերպությունները: Գոյություն ունե՞ն խնդրահարույց կապեր: Կա՞ն գոյություն չունեցող կապեր, որոնք Ձեր կազմակերպությունը համարում է կարևոր, որպեսզի դրանք լինեն:

Հիմնական հարց 3: Ի՞նչ չափով են ազդել այլ կազմակերպությունները ՎՎՀԿԿ համակրգի ներդրման գործում (տեղադրել ազդեցության շրջանակները համապատասխանաբար):

Ուղեկցող հարցեր: Դուք նշել եք բազմաթիվ կապերի առկայությունը տվյալ կազմակերպության հետ: Ինչու՞: Ինչո՞վ է պայմանավորված տվյալ կազմակերպության ազդեցիկությունը: Դուք նշել եք երկու կազմակերպությունների ազդեցությունը հավասար: Ի՞նչ կպատահի, եթե այդ կազմակերպությունները որոշեն չներդնել ՎՎՀԿԿ համակարգ: Արդյո՞ք այդ կազմակերպությունների ազդեցիկությունը միևնույն հարթությունում է: Դուք կապերվ նշել եք այս կազմակերպությանը բազմաթիվ այլ կազմակերպությունների հետ, սակայն, Դուք նշեցիք նաև, որ այն ազդեցիկ չէ: Ինչու՞:

Հիմնական հարց 4: Այս կազմակերպությունները դրական, բացասական, թե՞ նեյտրալ ազդեցություն ունեն Ձեր կազմակերպության կողմից ՎՎՀԿԿ համակարգի ներդրմանը:

Թեմա 5
Այլ գործոններ

Հարցեր

Հիմնական հարց 1: Ի՞նչ ազդեցություն ունի ՎՎՀԿԿ համակարգի ներդրմանը Ձեր կազմակերպությունում Հայաստանի ինտեգրումը Եվրատնտեսական միությանը:

Հիմնական հարց 2: Ի՞նչ դեր ունի սննդի անվտանգության օրենքը ՎՎՀԿԿ համակարգի ներդրմանը Ձեր կազմակերպությունում:

Նշումներ

Appendix 6: Institutional Review Board (IRB) Approval Form from American University of Armenia

American University of Armenia | Հայաստանի Ամերիկյան Համալսարան

February 02, 2015

Varduhi Petrosyan, MS, PhD

PRINCIPAL INVESTIGATOR: Sarah H. Kagan PhD, RN
STUDENT INVESTIGATOR: Suren Galstyan
TITLE: Towards Understanding Diffusion Barriers and Drivers to Organizational Adoption of Innovative Food Safety Management System in Armenia: Qualitative Analysis
SPONSORING AGENCY: None
PROTOCOL #: AUA-2015-004

Sarah H. Kagan PhD, RN, Suren Galstyan
Via Email: skagan@nursing.upenn.edu; suren_galstyan@edu.aua.am

Dear Dr.Kagan and Mr.Galstyan,

The above referenced protocol was reviewed and approved by the Alternative member of the Institutional Review Board #1 using the expedited procedure set forth in 45 CFR 46.110, category 6,7, on February 02, 2015. This study will be due for continuing review on or before February 02, 2016. Annual continuing reviews will be required for this proposal. The proposed study can proceed as it is approved by the AUA IRB. However, please note, the IRB must be kept apprised of any and all changes in the research that may have an impact on the level and type of IRB review needed for a specific proposal. You are required to notify the AUA IRB if any changes are proposed in the study that might alter its IRB status and consent procedures. New procedures that may have an impact on the risk-to-benefit ratio cannot be initiated until IRB approval has been given. Please retain this letter as documentation of the IRB's determination regarding your proposal. Please contact me, at vpetrosi@aua.am with a copy to auairb@aua.am, should you have any questions about the information in this letter. Thank you.

Sincerely,

Varduhi Petrosyan, MS, PhD
Alternative member of AUA IRB#1
Associate Professor
Director, Center for Health Services Research & Development
Associate Dean, School of Public Health
American University of Armenia

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LIST OF TABLES

Table 1: Conceptual Framework for Research Utilization

Time	Events and activities	Process stages
February 2014 to September 2014	**Literature search and review** Background reading, problem identification, development of research questions, title selection, references provision	Identification of databases, thorough relevant literature search provided with references, proposal presentation
October 2014 to November 2014	**Study method / design development** Method / design selection, data collect-ion methods and sampling strategy selection, theoretical framework selection	Having conversations with advisors about appropriateness of study design and methods, pretesting of guide
October 2014 to December 2014	**Study feasibility** Ttechnical, logistical, administrative, political, and financial aspects of study feasibility	Discussions with department staff and advisors related to cost analysis and feasibility issues
January 2015 to February 2015	**Ethical consideration** Informed consent forms in English and Armenian languages, interview guide, and application form provision for IRB approval	Developing and provision ethics approval form to IRB at AUA, receiving approval for conducting the study
February 2015 to May 2015	**Stakeholder involvement & Data collection** Individual in-depth face-to-face interviews, focus group discussions, field notes	Meeting with potential respondents for having interviews either in university setting or in place convenient for them
March 2015 to May 2015	**Data management & analysis** Study rigor, software program identification, method selection for qualitative analysis	Translation and transcription of data collection in conjunction with data analysis, peer debriefings
April 2015 to June 2015	**Discussion, recommendations, conclusion** Literature search, study strengths and weaknesses, policy, research and practice implications of study	Finding studies for comparing the results and finding similarities and contradictions, summarizing main findings

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Table 2: Profile of Respondents and Organizations in the Final Study Sample

Characteristics	Participants	
	Frequencey (n)	Relative frequency (%)
Type of interview		
IDI / FGD	20 / 23	
Gender		
Male	14 / 13	70.0 / 56.52
Female	6 / 10	30.0 / 43.48
Age		
20-29 years	1 / 3	5.0 / 13.04
30-39 years	6 / 9	30.0 / 39.13
40-49 years	9 / 5	45.0 / 21.74
50-59 years	3 / 4	15.0 / 17.39
> 59 years	1 / 2	5.0 / 8.70
Education		
University completed	18 / 17	90.0 / 73.91
Completed post-graduate degree	2 / 6	10.0 / 26.09
Job status		
Working full time	19 / 21	95.0 / 91.30
Working part time	1 / 2	5.0 / 8.69
Country district		
Near city	11 / 23	55.0 / 100
Regions	9 / -	45.0 / -
Type of organization		
FPO	20	46.5
NGO	15	34.9
GO	8	18.6
FPO size		
Micro (≤ 9)	2	10.0
Small (>10 & ≤ 49)	7	35.0
Medium (>50 & ≤ 249)	7	35.0
Large (> 250)	4	20.0
Area of specialization		
Food technology	3/ -	15.0 / -
Food safety	4 / 12	20.0 / 52.17
Both	13 / 11	65.0 / 47.83
Experience at current position		
1-3 years	2 / 3	10.0 / 13.04
3-5 years	6 / 4	30.0 / 17.39
> 5 years	14 / 16	70.0 / 69.57
Experience of HACCP system		
< 1 year	5 / 4	25.0 / 17.39
1-3 years	6 / 3	30.0 / 13.04
3-5 years	5 / 11	25.0 / 47.83
> 5 years	4 / 5	20.0 / 21.74
Position held in FPO		
Owner	5	25.0
Head of production	9	45.0
Head of food quality / safety	6	30.0

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Table 3: Reported barriers and drivers influencing the HACCP system adoption and diffusion

Themes	Categories	Barriers	Drivers
Perceived attributes of HACCP system	Relative advantage	-High initial costs -Economic unprofitability -Continuous investments -Overloading of employees -Time-consuming -Laborious process -Radical changes	-Greater control of organizational operations -Traceability -Higher satisfaction -Greater convenience -Enhanced organizational image -Continuity of the innovation progress -Centrality -Greater sustainability -Incremental innovation -Higher effectiveness -Credibility
	Compatibility	-Value incompatibility among staff -Resistance to change -Limited staff expertise and skills -Lack of incentives among staff -Inappropriate infrastructural capacity -Old technologies -Lack of laboratory supplies and equipment -Access to reliable laboratory testing -Lack of prerequisite programs	-Enhanced competences -Higher scalability of equipment -Incremental approach to the adoption of FSMS
	Complexity	-Structural complexity -Complicated terminology -Over documentation	-Increased accountability
	Observability	-Visibility -Low rate of cost recovery	-Result demonstrability
	Reinvention		-Flexibility
Communication channels	Mass media, interpersonal and interactive channels	-Weak communication with regional FPO -Little role of mass media -Poor familiarity with guidelines -Lack of expert consultation	-Persuasive language -Increased food safety awareness
	Localite and cosmopolite sources	-Lack of advanced guidelines and manuals -Lack of advanced trainings - Irregular meetings for information exchange -Remoteness -Poor internal communication	-Free access to guidelines and manuals -Consistent communication -Presence of positive opinion leaders -Usage of international experience
Organizational characteristics	Attitude and knowledge	-Negative attitudes of staff members -Attribute gap -Misunderstanding -A sense of disenchantment among late adopters -Unwillingness to adopt	-Positive attitude of executive managers to HACCP system adoption -Increased knowledge

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Themes	Categories	Barriers	Drivers
	Organizational culture	-Illusion of control -Lack of clear defined goals and strategies - Lack of clear defined strategies and aims	-Management commitment -Leadership support -Presence of small and measurable tasks
	Company size and age	-Smaller sizes -Younger ages	-Larger organizational sizes and ages
	Centralization		-Presence of centralized decision-making
	Complexity	-Low number of specialists -Low number of departmental units -Low professionalism	-Presence of different departmental units -Enhanced workforce professionalism -High specialization -Rewarding good performance of staff members
	Formalization	-Lack of operationalization plan -Lack of written forms of responsibilities -Too many responsibilities for one worker	
	Slack resources	-Lack of excess financial resources -Lack of excess human resources -Lack of excess time	-Presence of excess information
Characteristics of interorganizational network	Flow of knowledge	-Lack of reciprocated ties	-Formal diffusion -Supporting dissemination
	Flow of competition	-Poor dissemination in regional FPO	-Influence of dominant FPO
	Bounding		-Direct ties
External environment	Coercive pressures	-Poor competitive pressure -Lack of formal collaboration -Lack of epidemiological data -Lack of government liscensing -Lack of inspection based on HACCP principles -Outdated food safety regulations -Lack of enforcement mechanism -Low awareness of consumers -Unsustainable political situation -Poor socio-economic situation -Low position of the market to international market	-Government commitment -Compliance with legislation -Advocacy by international organizations -Exporting options -Orientation towards Western markets -Education of consumers -Trade diversification -Bureaucracy costs -Technical support
	Mimetic pressures		-Presence of high-performing companies -Increased legitimacy -Reduced risks -Performance gap
	Normative pressures	-Absence of shared vision -Lack of food safety education -Lack of personnel training	-High environmental threat -High degree of uncertainty -Formal trainings

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LIST OF FIGURES

Figure 2: The Innovation Process in an Organization (Rogers, 2003, page 421)

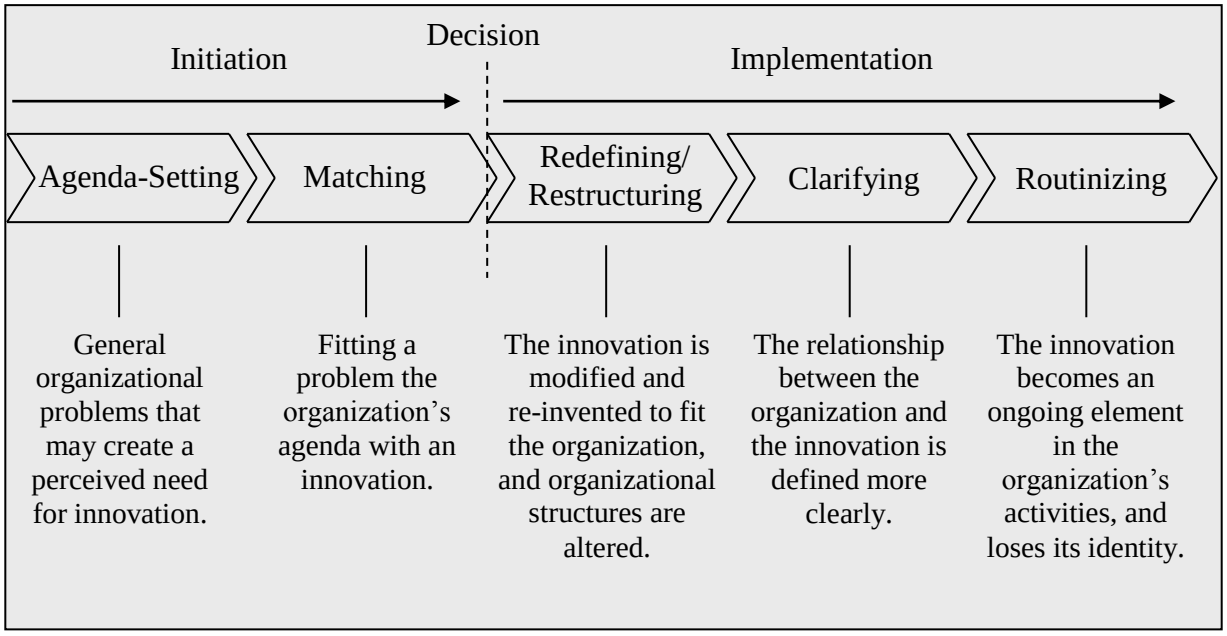

Figure 3: The Innovation-Decision Process (Rogers, 2003, page 170)

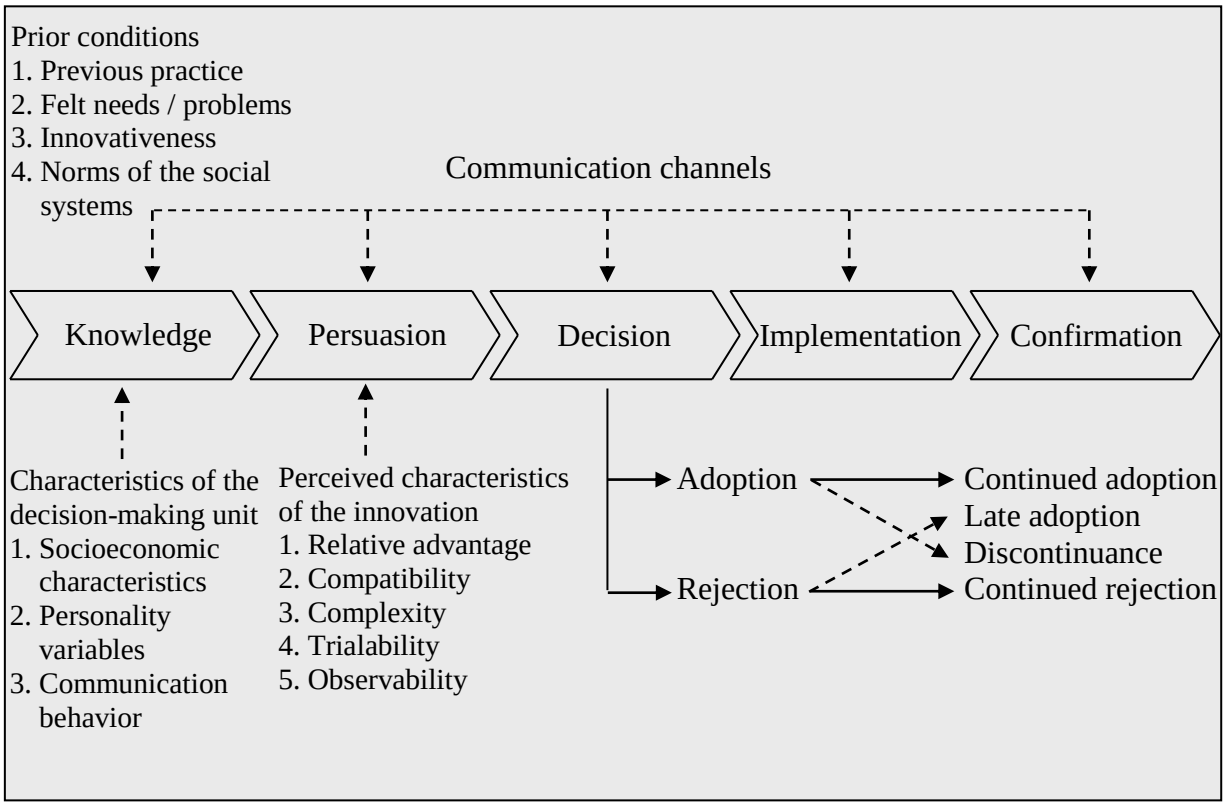

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Figure 4: The Rate of Adoption for a Usual Innovation

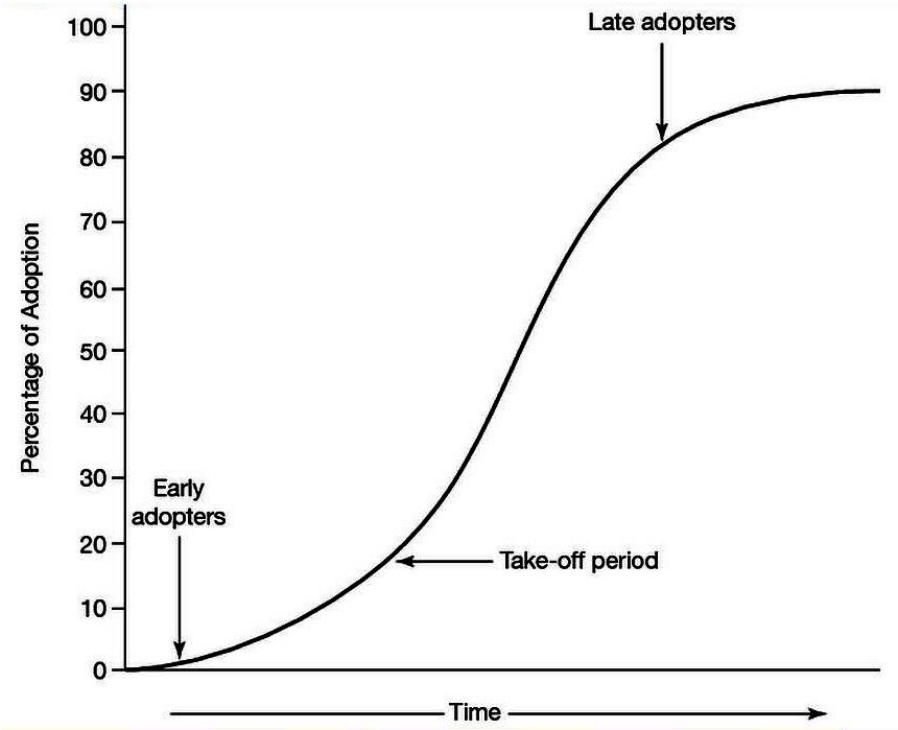

Figure 5: Adopter Categorization on the Basis of Innovativeness

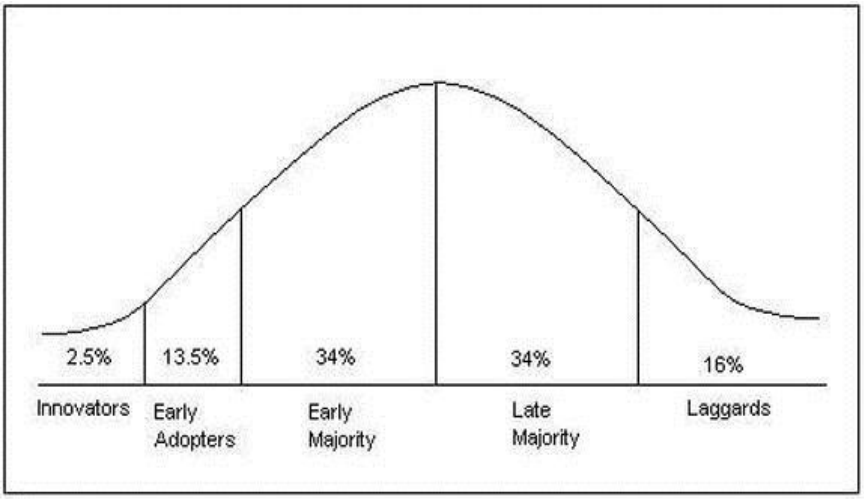

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Figure 6: Variables Influencing the Rate of Innovation Adoption. Source: (Rogers, 2003)

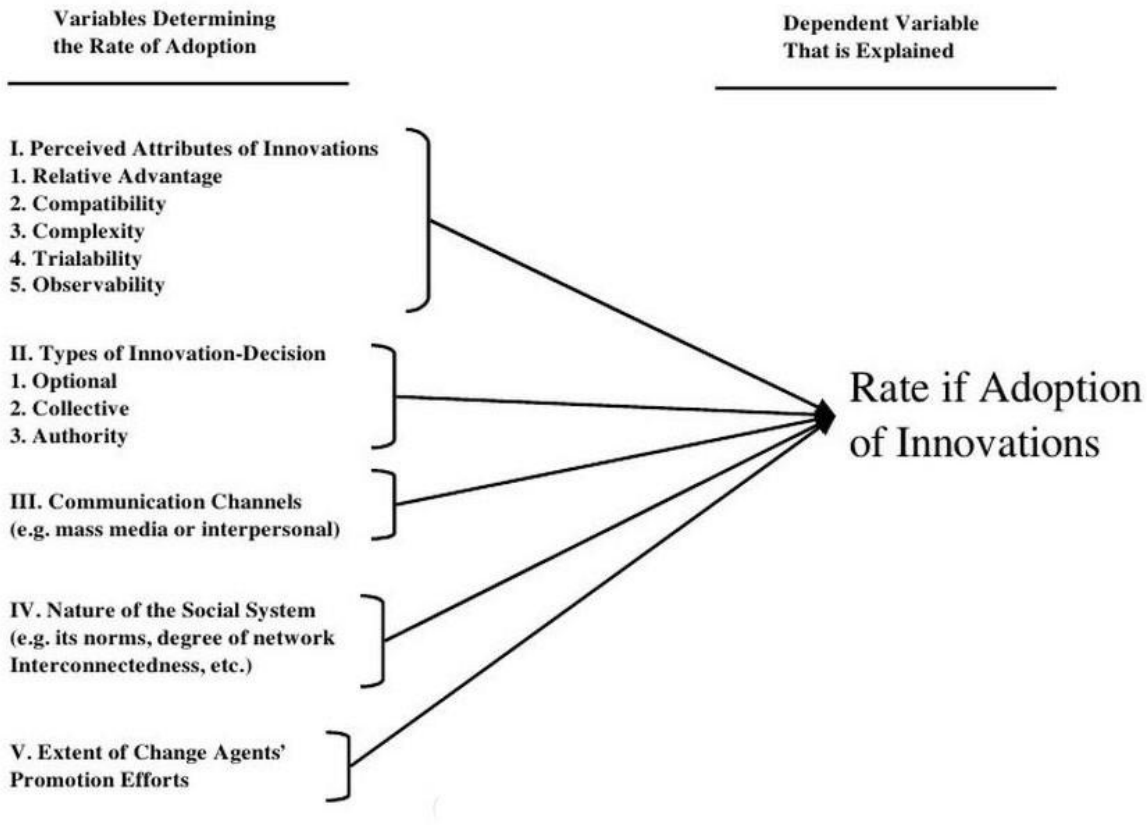

Figure 7: Framwork of Institutional Theory (Dimaggio & Powell, 1983)

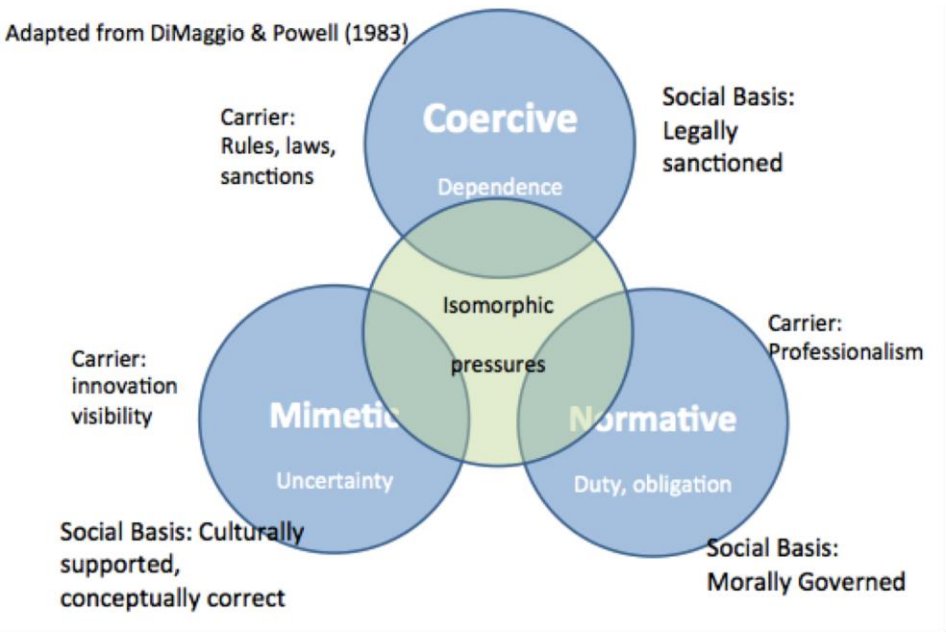

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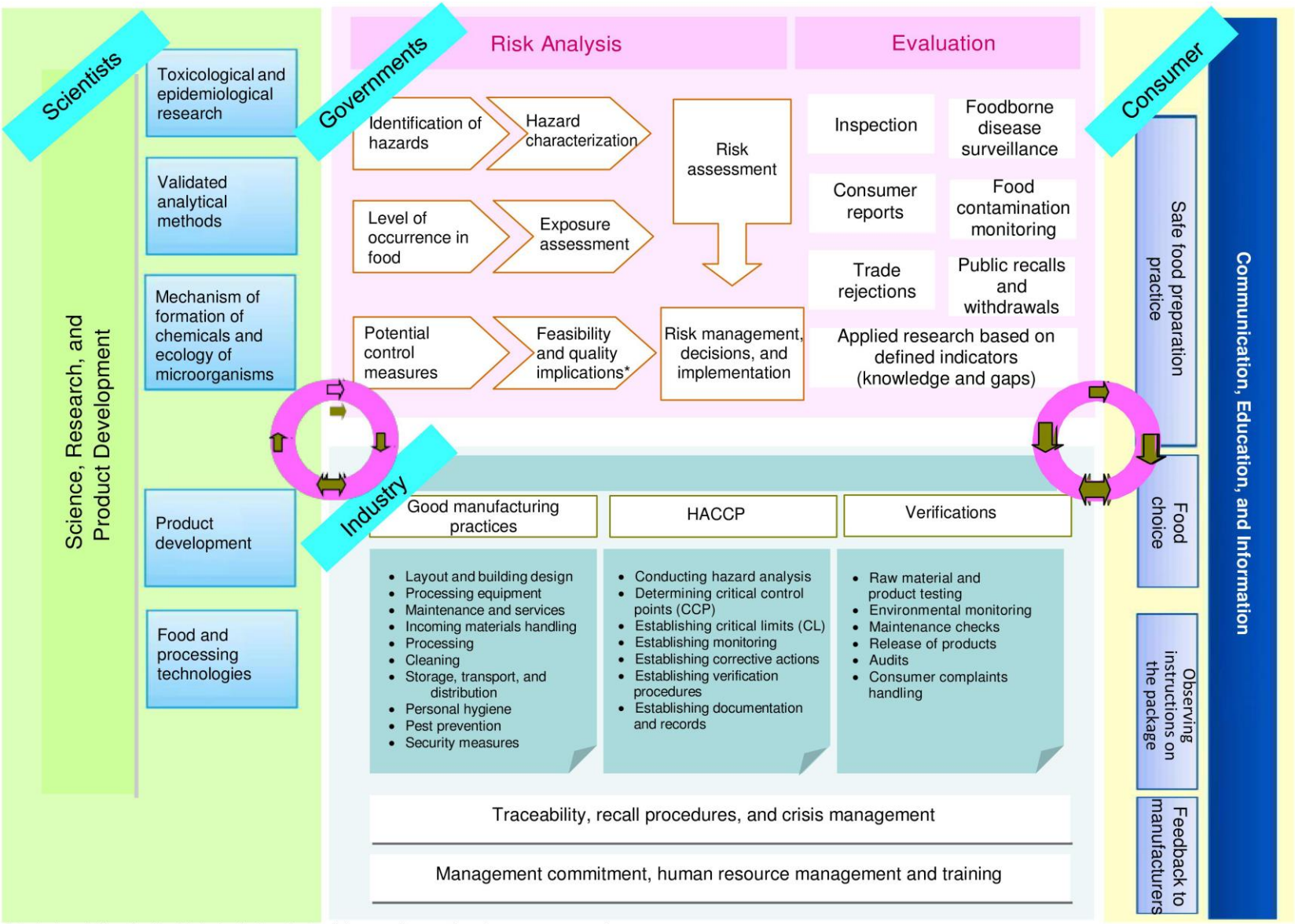
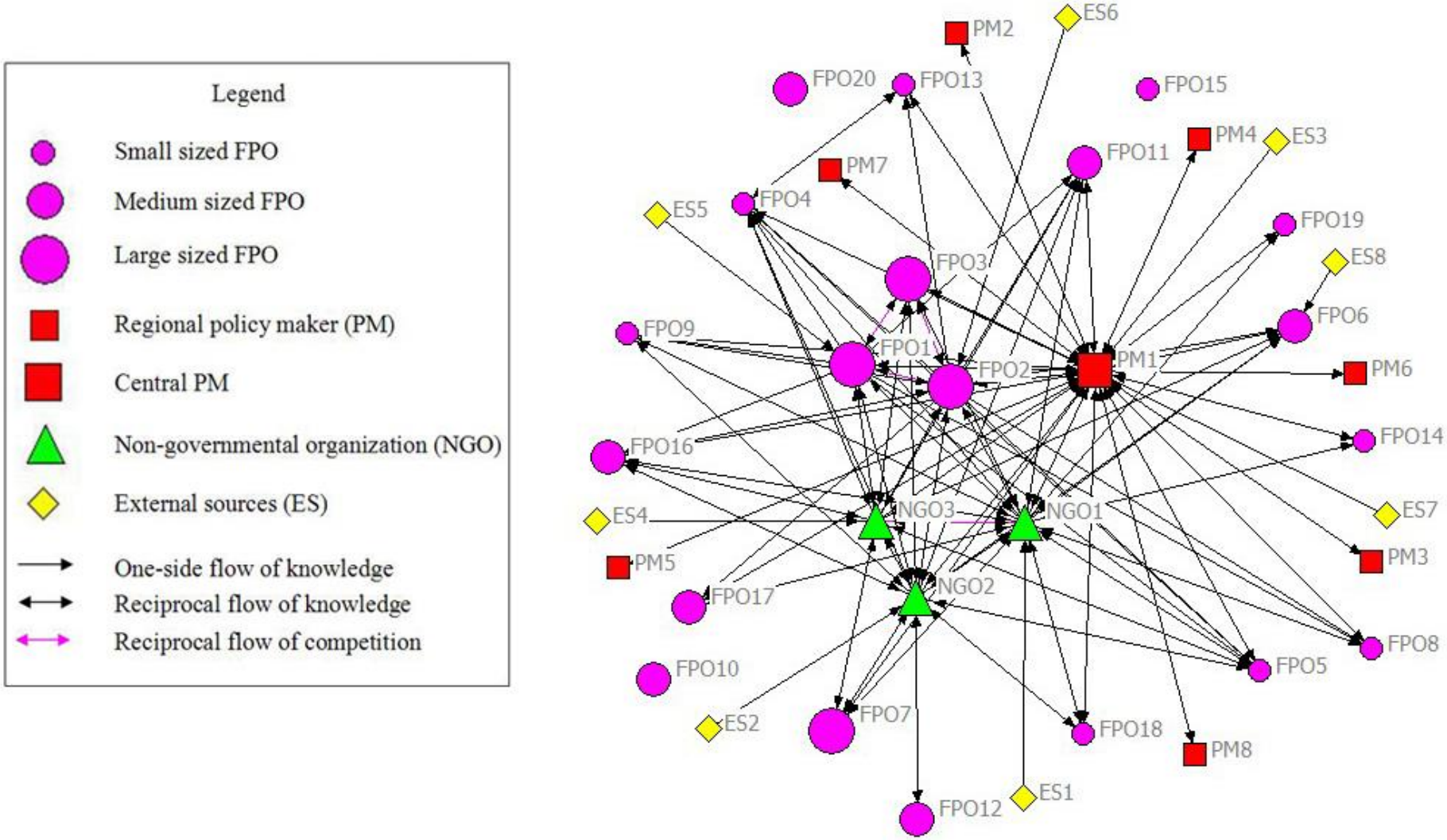
Figure 8: Elements of Innovative Food Safety Management System (Motarjemi, 2014)



* Include nutritional, microbiological, chemical safety as well as cost and consumer acceptance

Figure 9: Interorganizational Network Map



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