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**The Knowledge Exchange Dynamics of Social Compliance
in Facilitating Social Innovation: a case study of Korean-
owned garment factories in the Myanmar garment sector**

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Abstract

The thesis investigates a network of garment firms in Myanmar to understand the mechanisms of knowledge exchange and how firms ascertain knowledge of social compliance. This thesis considers that the adoption of international social standards is linked to the creation of social innovation in regard to employee well-being. Social network analysis was conducted, and a mixed method approach was used in which both qualitative and quantitative data was considered. The research targeted 63 Korean-owned firms in Yangon; the main research questions are to understand the mechanisms and interplay of knowledge exchange of social compliance in a network which factories obtain knowledge and the influential factors in knowledge exchange. This thesis considers pertinent literature such as the types of knowledge and the different dimensions of proximity. The findings suggest that there is a hegemonic structure in which knowledge exchange is unequally diffused among actors; which has an adverse impact on factories in the periphery of the network, tacit knowledge can facilitate knowledge embeddedness, the exchange of codified knowledge is limited by geographical proximity and finally closeness in institutional proximity can augment instance of distance in other proximities which can negate negative community lock-in and spatial limits.

Keywords: Social Innovation, Knowledge Exchange, Supply Chain, Garment, Manufacturing, Social Compliance, Social Standards, Myanmar, Social Network Analysis,

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Table of Acronyms

BSCI	Business Social Compliance Initiative
CMP	Cut, Make, Pack
FDI	Foreign Direct Investment
FOB	Freight on Board
GDP	Gross Domestic Product
ILO	International Labor Organization
IT	Information Technology
K-factories	Korean-owned garment manufacturing factories
KOGAM	Korea Garments Association in Myanmar
KOTRA	Korea Trade-Investment Promotion Agency
MGMA	Myanmar Garment Manufacturers Association
MMK	Myanmar Kyats: the currency of Myanmar
OBM	Own Brand Manufacturing
RIS	Regional Innovation Systems
SMART Myanmar	SMEs for Environmental Accountability, Responsibility and Transparency
SNA	Social Network Analysis
SNS	Social Networking Service
UMFCCI	Union of Myanmar Federation of Chambers of Commerce and Industry

Table of Contents

Abstract	2
Acknowledgments	3
Table of Acronyms	4
1. INTRODUCTION	8
1.1. Aim of the Thesis	8
1.2. Research Questions	9
1.3. Contributions of the Thesis	10
1.4. Structure of the Thesis	11
2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW	12
2.1. The Types of Knowledge	12
2.1.1. Codified knowledge	12
2.1.2. Tacit knowledge	12
2.1.3. Complementarity of the two types of knowledge	14
2.2. The Proximity of Knowledge	14
2.2.1. Geographical proximity	15
2.2.2. Other dimensions of proximity	16
2.3. Literature Review	18
2.3.1. Knowledge exchange: an individual perspective	18
2.3.2. Knowledge exchange: a regional perspective	19
2.3.3. Knowledge exchange: an institutional perspective	20
2.4. Theoretical Structure of the Thesis	20
3. RESEARCH DESIGN	22
3.1. Methods	22
3.1.1. Target group of the research	22
3.1.2. Identification of the actors and networks	24
3.1.3. Research design and data collection	25
3.1.4. Data analysis: Social Network Analysis (SNA)	26
3.2. Ethical Considerations	27
3.3. Limitations	28
4. A CASE STUDY: Korean-owned Garment Manufacturing Factories in the Yangon Industrial Zones	29
4.1. Overview of the Myanmar Garment Sector	29
4.1.1. The impact of Sanctions on the garment industry	29
4.1.2. Current contribution of the garment sector	30
4.1.3. The most significant type of production in the garment sector	30

4.1.4.	Geographical context of the Yangon industrial zones	31
4.2.	Business Profile of Korean-owned Factories.....	33
4.2.1.	Brief history	33
4.2.2.	Contributions of Korean-owned factories to the garment sector	33
4.2.3.	Business profile of Korean-owned factories.....	34
4.2.4.	Business Trends of Korean-owned factories	35
4.3.	Social Compliance Standards in a Perspective of Knowledge	36
4.3.1.	A matter of sustaining the business	36
4.3.2.	A matter of employee well-being	38
4.3.3.	Little emphasis on social compliance as knowledge	39
4.4.	Formation of the Network to Exchange Knowledge	40
4.4.1.	Actors in the supply chain	40
4.4.2.	Actors outside the supply chain.....	42
5.	ANALYSIS AND DISCUSSION	44
5.1.	The Flows of Knowledge in the Network (Q1)	44
5.1.1.	Enablers in knowledge exchange of social compliance (Q1-1).....	46
5.1.2.	Barriers of knowledge exchange of social compliance (Q1-2).....	47
5.1.3.	Heterogeneous distribution of knowledge in the network (Q1-3)	49
5.2.	Impact of Type of knowledge on Knowledge Exchange (Q2-1)	50
5.2.1.	Social compliance as codified and tacit knowledge	50
5.2.2.	The process of learning new knowledge of social compliance.....	52
5.3.	Impact of Proximity on Knowledge Exchange (Q2-2)	57
5.3.1.	Impact of geographical proximity.....	57
5.3.2.	Impact of other proximities	58
6.	CONCLUSION	61
6.1.	Summary of the Findings	61
6.2.	Future Research	63
	Reference:	64
	Appendix A: A list of the research target group	69
	Appendix B: Questionnaires of the survey.....	71
	Appendix C: Statistic information of Social Network Analysis	81

List of Tables

TABLE 1. THE TYPES OF KNOWLEDGE.....	13
TABLE 2. STRUCTURE OF THE SURVEY QUESTIONNAIRES.....	25
TABLE 3. ACTORS (SUPPORT ORGANISATIONS) OUTSIDE THE SUPPLY CHAIN.....	42

List of Figures

FIGURE 1. BUSINESS STRUCTURE OF KOREAN-OWNED FACTORIES IN MYANMAR.....	23
FIGURE 2. GARMENT VALUE CHAIN IN MYANMAR.....	24
FIGURE 3. DIFFERENCE BETWEEN CMP AND FOB PRODUCTION-TYPE.....	31
FIGURE 4. A MAP OF THE YANGON INDUSTRIAL ZONES.....	32
FIGURE 5. KOREAN-OWNED FACTORIES' ANNUAL REVENUE AND ITS TREND IN 2017.....	35
FIGURE 6. THE KNOWLEDGE SHARING NETWORKS OF THE KOREAN-OWNED FACTORIES.....	40
FIGURE 7. THE FLOWS OF KNOWLEDGE EXCHANGE IN THE NETWORK.....	45
FIGURE 8. FREQUENCY OF KNOWLEDGE EXCHANGE (OUTFLOWS).....	46
FIGURE 9. FREQUENCY OF KNOWLEDGE EXCHANGE (INFLOWS).....	49
FIGURE 10. PREFERENCE ON METHODS FOR KNOWLEDGE EXCHANGE.....	52
FIGURE 11. PREFERRED CHANNELS FOR KNOWLEDGE EXCHANGE.....	54
FIGURE 12. REASONS OF CONSIDERATION IN ADOPTING SOCIAL COMPLIANCE.....	55
FIGURE 13. NATIONALITY OF FOREIGN SKILLED WORKERS/ENGINEERS.....	56

1. INTRODUCTION

As of recent times Myanmar is at an auspicious point in its economic history and has been attracting burgeoning foreign direct investment (FDI) after sanctions (BIF, 2016). Following the trajectory of other developing nations pre-industrialization, Myanmar has experienced rapid growth in industrialization through specialization in its garment sector, based on labour-intensive, export-oriented, and standardized technology (Kudo, 2012). Consequently, the garment manufacturing sector has become the most rapidly evolving sector in Myanmar, which is significant not only to the stimulation of monetary growth but also to its employment since the sector provides a number of formal jobs to the urban poor (BIF, 2016).

However behind the scenes, many reports show the reality of what garment factory workers have faced such as child labour, forced labour, non-compliance of contractual obligations etc (GAP, 2014; Lehmann and Schacknat, 2015; ALR, 2016). If social innovation is considered as “innovative activities to meet a social need (Mulgan, 2006: 146)”, adoption and practice of social compliance standards may help the sector mitigate current issues of non-compliance. However, factories tend to have difficulty in having access to relevant knowledge sources to learn how to adopt these standards.

1.1. Aim of the Thesis

South Korea makes the second largest contribution to the sector after China and has the biggest share in the employment market (ALR, 2016). According to MGMA (Myanmar Garment Manufacturers Association) (MGMA, 2015), there is no doubt that Korean-owned garment manufacturing factories (“K-factories”) are significant business partners in the sector. Therefore, it is crucial to know how K-factories can improve social standards to achieve the employee well-being. As many scholars posited, innovation is closely linked to obtaining new knowledge in networks (Amin and Wilkinson, 1999; Howells, 2002; Kastle, T., and Steen, 2010). Yet, little is known on how factories have access to knowledge sources to sustain their business in the sector. In addition, social compliance is a new concept in Myanmar, thus there are not sufficient sources of knowledge for factory managers to obtain.

Therefore, this thesis aims to explore the mechanisms of a network in which K-factories interact with other actors (firms, support organisations etc.) to obtain knowledge of social

compliance. To understand the structure, interaction, and knowledge flows within networks, this thesis employs social network analysis (SNA) which is based on an empirical case study (Ter Wal and Boschma, 2009).

1.2. Research Questions

This thesis has two research questions which are as follows;

Q1. What is the hegemonic structure of the network? And what enables or hampers the diffusion of knowledge exchange in regard to social compliance?

: (Q1-1) What enables knowledge exchange of social compliance?

: (Q1-2) What act as barriers of knowledge exchange of social compliance?

: (Q1-3) What are the key characteristics and trends of knowledge distribution in the network?

Q2. What influences does different types and proximities of knowledge have on the process of knowledge exchange?

: (Q2-1) What is the impact of knowledge type on knowledge exchange?

: (Q2-2) What impact does different knowledge proximity have on the process of knowledge exchange?

The first research question (Q1) focuses on the structure and composition of the network. That is, the flows of knowledge and the main actors in the network. The first question assumes that there are enablers (Q1-1) and barriers (Q1-2), which have significant influence on knowledge diffusion in the network. These enablers, barriers, and actors in the network influence the structure of the network and knowledge exchange, this research aims to investigate these dynamics.

The second research question (Q2) examines the variables that influence the flows of knowledge in the network. That is, the different types of knowledge such as codified- and tacit knowledge; and the dimensions of proximity such as geographical-, cognitive-, social-, organisational-, and institutional proximity; which expound on flows and dimensions of different knowledge varieties based on their “proximity”. Under the second question, there are two sub-questions: (Q2-1) explores the impact of different knowledge type on the flows of knowledge; (Q2-2) looks at the ties between actors in the network. Disparate knowledge

proximities may affect different linkages which may also affect the range and frequency of knowledge transmission.

1.3. Contributions of the Thesis

1) Provision of detailed information and insights for policy arrangements:

The Myanmar government has a plan to upgrade its garment sector (MGMA, 2015). Yet, it has not made an accurate analysis on what is lacking or what potentials can be found in the sector. In fact, little is known about the conditions of sector since ample researchers have not been able to ascertain data on it since sanctions were imposed, which may be caused by the new born government's limits in consideration of the state's decades-long pariah status (Chow and Easley, 2016).

Considering the above, this thesis offers novel significance in providing detailed information of the sector which has not been previously done. In addition, the results of the SNA suggest and provide insights in which policy arrangements can be implemented in fostering knowledge diffusion and what roles should be taken by each actor in the network to ensure market growth, competitiveness, and how social needs can be met.

2) Provision of an empirical evidence that social compliance may create social innovation that can be fostered by obtaining its knowledge:

In recent time, social compliance has become one of the most significant "issues" in the sector, which is one that garment factories must meet its standards, otherwise they are likely to be excluded from global value chains (Nadvi, 2008; Lund-thomsen and Nadvi, 2010; BIF, 2016). For factories, its international standards can be of concern in their business in a perspective of a short-term basis; since it is not easy for small-sized firms to comply with the rigorous requirements. However, at the same time, it also can be a favourable opportunity for both a firm and its employees on a long-term basis since a firm can have stable orders from the US and EU but also can provide a better workplace to its workers. Thus, adopting and practicing social compliance itself can not only be business innovation (in terms of meeting a business need) but also social innovation (in terms of meeting a social need) (Mulgan, 2006). However, this has rarely been the subject of research, particularly regarding workers' insights in garment

sector. Moreover, this thesis provides an empirical reference showing that social innovations can be engendered by sharing knowledge of social compliance.

1.4. Structure of the Thesis

This thesis is divided into seven sections. The first section contains an introduction, specific purpose, research questions and the contributions of the thesis. In the second section, the theoretical structure is constructed based on the literature review. The third section illustrates SNA which is based on a mixed methods approach; and identifies the actors both inside and outside the supply chain, which form the network. Following this, the data collection and limitations are provided. The fourth section provides background information on the case such as an epitome of the Myanmar garment industry and business profile of K-factories. In sequence, the fifth section delivers the results of SNA based on qualitative and quantitative data. Lastly, the conclusion section provides essentials of the findings and a suggestion for future research.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

For innovation, a firm needs some new knowledge that cannot be found inside the firm, which, in other words, may be found in external knowledge; it means that the firm must deviate from its own routines to innovate (Amin and Wilkinson, 1999). Given that new knowledge is unlikely to be ubiquitous, a firm needs to obtain it from a distant source; moreover, in the case of the garment industry, numerous actors are directly and indirectly connected within global supply chains. Thus, understating the mobility of knowledge is one of fundamental aspects of innovation. Therefore, this section reviews the literature in regard to knowledge types and proximities, aiming theoretically to understand which factors have an effect on its transmission.

2.1. The Types of Knowledge

Knowledge can be defined as a cognitively dynamic framework in which people can store and assimilate certain information; therefore, it is closely associated with the behavioural process of learning either individually or collectively (Howells, 2002). It is believed that knowledge is divided into two types: codified and tacit knowledge, which can appear solely or coexist concurrently.

2.1.1. Codified knowledge

Codified knowledge is defined as the knowledge in forms of scientific or scripted knowledge, or formal knowledge, which can be ascertained primarily through a deductive process and be accessed from pure research, formalized models and scientific principles (Amin and Wilkinson, 1999; Mckeever, 2017). Codified knowledge can be articulated in a scripted form, therefore it is readily transmittable beyond the geographical limits and its context generation (Amin and Wilkinson, 1999; Lissoni, 2001). Acquiring codified knowledge may require high levels of education, therefore absorption barriers may exist in trying to procure codified knowledge (Amin and Wilkinson, 1999).

2.1.2. Tacit knowledge

On the contrary, tacit knowledge is described as a relatively informal form of knowledge that cannot be easily articulated or verbalized (Mckeever, 2017). Tacit knowledge is also

understood as a useful tool in internalizing information derived from outside sources (Howells, 2002). Thus, it is somewhat personally oriented or psychomotor skills, which is related to a person's conscious behaviour (Amin and Wilkinson, 1999). Therefore, it tends to be embedded in a person or a certain organisation or a particular region; personal knowhows, personal skills in solving a problem and experienced knowledge are good exemplars (Amin and Wilkinson, 1999; Lissoni, 2001). It can be transmitted via face to face interactions, learning by doing, and shared experiences with other actors affiliated to their social groups (Howells, 2002; Mckeever, 2017). Tacit knowledge has a highly-contextualized nature, which is generally circulated within limited communities (organisations) or geographic locations (Mckeever, 2017). Therefore it may require common social or cultural background and a sense of solidarity to learn tacit knowledge (Amin and Wilkinson, 1999; Lissoni, 2001). Unlike codified knowledge that has a lesser restriction on the geographical context and is relatively extraneous to a certain bond, tacit knowledge can be very sensitive to spatial proximity but also can impede interactions with actors outside the communities (Amin and Wilkinson, 1999; Mckeever, 2017).

Table 1. The types of knowledge

Type	Codified Knowledge	Tacit Knowledge
Definition	<ul style="list-style-type: none"> formal knowledge in the realm of scientific or scripted knowledge. 	<ul style="list-style-type: none"> informal knowledge personally known or experienced.
Features & Transferability	<ul style="list-style-type: none"> can be ascertained primarily through a deductive process and accessed via pure research, formalized models and scientific principles. the entry barriers having access to mastered sources is considerable. ready to be transmitted and articulated in written forms of knowledge, which has a ubiquitous nature with less sensitive to spatial proximity. 	<ul style="list-style-type: none"> can be ascertained through practical experience which is contextually and culturally embedded. difficult to articulate and verbalize. can be transmitted via face to face interactions and shared experiences, learning-by-doing with other actors and social groups. has a highly- contextualized nature, which the knowledge is embedded and circulated in certain organisations and geographic locations; very sensitive to spatial proximity.
Examples	<ul style="list-style-type: none"> instructional manuals; formalized procedures; systems and models; scripts; and principal. 	<ul style="list-style-type: none"> innate values and skills; facial and voice recognition; body language; personal and experienced know-how; leadership; aesthetic sensibility; and driving.

(Source: Amin and Wilkinson, 1999; Lissoni, 2001; Howells, 2002; Gertler, 2003; Mckeever, 2017)

2.1.3. Complementarity of the two types of knowledge

The innovation literature dissects the constituent forms of knowledge into two types as mentioned above, however the two are complementary to reinforce firm's competitiveness. According to Howells (2002), knowledge cannot be divided into two but should be considered as a form of continuum. Unlike pure research institutions or pure art studios, there is no doubt that firms which are engaged in producing merchandises need application knowledge that can be seen as 'tacit knowledge' based on major technological and scientific knowledge that can be seen as 'codified knowledge' (Lissoni, 2001).

It is noteworthy that tacit knowledge has a role in developing craft knowledge within science disciplines (Howells, 2002), that is, it has a function to internalize knowledge in a more tailored way to individuals or organisations. Knowledge cannot simply be implanted in someone; it needs the process of internalization in which tacit knowledge plays a significant role. In this respect, innovative firms may have the capability of transforming codified knowledge into tacit knowledge. Therefore, a firm can make viable innovation through the knowledge internalization within its own firm.

2.2. The Proximity of Knowledge

Knowledge can be transferred from individual levels to organisational levels or to wider levels beyond geographic boundaries (Howells, 2002). In this context, different proximities are a crucial notion to understand how knowledge can travel between actors. It is still an on-going debate over the disparate types of proximity (Molina-Morales, *et al.*, 2014), generally economic geographers focus more on geographical proximity. Geographical proximity (or a region) plays a key role in facilitating knowledge exchange between actors to deal with rapidly evolving technologies, fluctuating markets, unpredictable economic conditions and current trends (Amin and Wilkinson, 1999). In other words, it seems difficult to see the diffusion of knowledge deviating from the geographic locations due to its nature. Apart from geographical proximity, the literature reveals other dimensions which facilitate knowledge exchange such as cognitive, organisational, social, and institutional proximity. This section reviews the literature regarding the types of different proximities and their impact on knowledge exchange.

2.2.1. Geographical proximity

Business cluster and regional geographic literature acknowledges that geographical proximity is the core feature in knowledge diffusion in inter-firm networks. Boschma (2005: 63) defines “geographical proximity is spatial distance between actors, both in an absolute and relative meaning”. Geographic conditions can be a crucial matter for the knowledge transmission since there is a tendency that knowledge¹ is imbedded in individuals who are influenced by the geographical settings such as cognitive, social, cultural, homogenous communities, bonds, and economic circumstances (Lissoni, 2001; Howells, 2002). Therefore, knowledge can be developed by human interactions within a certain community, at the same time it can be spatially constrained by distance (Howells, 2002).

The literature acknowledges that knowledge is a set of information assimilated by and imbedded in an individual, therefore, there are barriers to learn new knowledge from a person who lives outside the community. In this respect, knowledge acquisition can be a time-consuming process and associated with costs to travel, buy, and transform it into the appropriate types of knowledge to fulfil the purposes. In terms of time and cost, it would be a considerable matter not only for individuals but also for firms. In the innovation literature, there is no doubt that an inflow of new knowledge from external sources is essential to pursue the on-going development of knowledge. Moreover, a significant challenge for firms is how to expand the individual knowledge to a wider organisational level in which individuals or groups can keep creating common knowledge and sharing new knowledge (Howells, 2002). Howells (2002) recognises the knowledge transmission as a ‘flow’ in a network that consists of individuals or groups. In his paper, he puts more stress on the perspective of individuals because a group is also composed of individuals. In this regard, the knowledge transmission is constrained by physical distance itself, yet it can also be affected by a person’s characteristics such as a capability to learn new things, and past experiences since the knowledge transmission is considered as activities between individuals (Howells, 2002).

It is a pervasive view that tacit knowledge is particularly more sensitive to the geographical context and physical distance than codified knowledge is. This is associated with the nature of knowledge. Codified knowledge has become more easily tradable that can be accessed

¹ In the literature, it refers to all forms of knowledge such as codified and tacit knowledge, but it is a pervasive view that generally tacit knowledge is more constrained by distance.

relatively regardless of distance due to the globalization and development of IT (Information Technology) (Gertler, 2003). On the contrary, tacit knowledge is described as the localized, non-tradable, non-ubiquitous, and context-specific knowledge, which generally can be found in certain places that have special something ‘in the air’ (e.g. Silicon Valley) (Fritsch and Kauffeld-Monz, 2010; Gertler, 2003). Therefore, Gertler (2003) posits that tacit knowledge does not easily travel, thus it can be acquired by face-to-face interaction, learning-by-doing, practice and repeat. Of course, the individual-base knowledge can be vigorously encouraged by specific circumstances such as learning regions (innovative clusters and districts) and communities of practice, in which tacit knowledge can be more easily shared between partners with the basis of trust, moreover, knowledge enablers may have a key role in facilitating to deliver tacit knowledge (Gertler, 2003). However, the literature acknowledges that these activities of knowledge diffusion appear within a limited boundary. Therefore, tacit knowledge tends to be contained in a behavioural routine with a social context, which is more likely to be subordinate to geographical conditions.

2.2.2. Other dimensions of proximity

Even though some scholars regard geographical proximity as the core component in knowledge diffusion, Boschma (2005) claims that it may not be a solely sufficient factor, rather geographical proximity is closely interacting with co-existing proximities that are complimentary or restrictive in knowledge exchange between actors. Therefore, he argues that a relation with other dimensions of proximity should also be examined, along with geographical proximity (Boschma, 2005).

Cognitive proximity is associated with the distance of the similarity between actors who share similar rationality, perception, interpretation, and evaluation knowledge (Boschma, 2005; Molina-Morales, *et al*, 2014). In this respect, cognitive proximity can be promoted by the existing knowledge base, common culture, values and norms (Molina-Morales, *et al*, 2014). Cognitive proximity is important to learn new information through the efficient communication based on the common values, yet too much cognitive proximity may cause the risk of lock-in and undesirable spill overs to competitors (Boschma, 2005).

Organisational proximity is considered as a broader concept (category) including the cognitive proximity (ibid), which means some researchers do not distinguish two notions². However, cognitive proximity is more based on an individual level's perspective (specialized niche), whereas organisational proximity focuses on an organisational level's perspective. Therefore, knowledge exchange is either an activity between individuals arranged by an organisation or it can be extended to an activity between organisations (Boschma, 2005). The flows of knowledge happen in the same space of relations (Gilly and Torre, 2000: 3), therefore, this proximity is closely associated with a network arranged by organisations. The network can be connected by a relationship between member companies of industrial or financial group; they may have different levels of ties (weak and strong), it is known that strong ties are required to transfer complex knowledge (Boschma, 2005). However, excessive levels of organisational proximity may hinder the acquisition of the novel information from outside their own organisations (communities), moreover, asymmetric relations can be oftenly found due to different size and power of members, which is linked to inefficient diffusion of knowledge (ibid).

Social proximity is defined as a degree of closeness based on socially embedded norms; this refers to a relation that is formulated by a trust base such as friendship, language, culture, kinship and experience (Boschma, 2005; Agrawal, Kapur and McHale, 2008). Accordingly, social proximity is formed by relationships via social networks (e.g. co-ethnic networks) (Agrawal, et al., 2008). Organisational and social proximity are both based on ties, however, organisational proximity more likely involves hierarchal ties due to the organisational nature, whereas social proximity is associated with a relatively horizontal trust base (Boschma, 2005).

Lastly, institutional proximity is associated with the institutional framework, in this context the institutions govern the way individuals or organisations collectively interact to learn new knowledge (Boschma, 2005; Hong and Su, 2013). Institutions can be divided into two types: formal and informal institutions. Formal institutions are defined as 'laws and rules' whereas, informal institutions are associated with 'conventions, cultural norms and habits, self-imposed codes of conduct' (Ernst and Kim, 2002:4; Boschma, 2005:68), which all tend to regulate the relations and activities between actors. It is not always precise, and although different types of proximity seem overlapping in terms of their concepts, institutional proximity can be

² For instance, refer to the paper of Molina-Morales, *et al.* (2014).

understood as the broader proximity covering social and organisational proximity since both are governed by institutional settings (Boschma, 2005). Therefore, institutional proximity may reinforce the deficiency of social and organisational proximity.

2.3. Literature Review

With a basis of the theory as discussed above, subsequently this section focuses on the existing literature regarding '*enablers in knowledge exchange*' approached by three perspectives: individual, regional, and institutional.

2.3.1. Knowledge exchange: an individual perspective

The literature focusing on the individual perspective considers that knowledge is diffused mainly by individuals, thus linkages among actors are a key subject to be examined (Kim and Park, 2009).

As acknowledged in the literature of knowledge (Oakleaf, 2007), Droege and Hoobler (2003) posit that knowledge is embedded in the intuition of individuals as a form of personal value-added. They thus articulate that knowledge diffusion is a consequence of the mobility of a labour. Particularly, tacit knowledge is more related to this phenomenon since a scripted manual (codified knowledge) itself can travel relatively without an aid of enablers. That is, knowledge in a codified format is available to anyone. However, tacit knowledge involves application of the manuals therefore, if an employee leaves a firm they may have a loss on that person's cognitive ability such as their know-how. In this respect, employing specialised workers is one of the best way in acquiring tacit knowledge. Cowan and Jonard (2004) study network structure and knowledge diffusion, they also consider an individual agent is a main unit in knowledge exchange. They find that spatial proximity, mutual benefits and successful experience in exchanging knowledge are significant matters of knowledge transmission. Morone and Taylor (2004) study on the face-to-face interactions in sharing knowledge; they posit that the initial knowledge gap between actors can hinder from spreading knowledge, that is, actors endowed with low level of knowledge may not be capable to learn new knowledge. Singh (2005) posits that spatial distance can be a greater matter on knowledge exchange, yet, ties are more critical than being in a same region. Kim and Park (2009) probe into the model

of a small world network³; they argue that closeness in geographical proximity (a short path length) is likely to increase a degree of knowledge diffusion, at the same time cliquishness (ties) can affect its flows; and they conclude that a closely connected network with a fewer number of actors is more efficient to achieve knowledge than a broadly connected network with a greater number of actors. This concept is partially parallel to the regional perspective literature in the following section.

2.3.2. Knowledge exchange: a regional perspective

The literature with a regional perspective is primarily related to regional innovation systems (RIS) that address the significance of closeness in geographical proximity. Knowledge tends to exist in the air and travel more easily within short distances (Ter Wal and Boschma, 2009; Martin *et al.*, 2017). That is, the regional setting is one of the most critical elements in creating an innovative environment in which enables actors to share knowledge in an efficient manner (Kim and Park, 2009). That is, industrial zones and clusters are typical exemplars, in which actors benefit each other by sharing localized knowledge via labour mobility and knowledge spill overs (Fritsch and Kauffeld-Monz, 2010). Moreover, RIS include universities, research centres and government's support programmes; in which firms can access to varied knowledge sources (Martin *et al.*, 2017). In other words, actors in RIS are likely to reduce the transaction cost; because learning knowledge requires actors to go through the complex processes and its costs are sensitive to the spatial distance, furthermore, it is a matter whether certain knowledge would bring innovation or not; therefore, circulating knowledge within a certain boundary can mitigate risks frequently encountered in markets (Jones, Hesterly and Borgatti, 1997; Fritsch and Kauffeld-Monz, 2010).

Yet, this concept, being simply in a same region would have a high possibility to bring innovation, is criticized since ties among actors are somewhat undervalued (Singh, 2005; Fritsch and Kauffeld-Monz, 2010). Therefore, scholars highlight that actors' direct relationships should be considered together with spatial proximity (Fritsch and Kauffeld-Monz, 2010). In the respect, ties can enforce the network, thus the epistemic community is as critical as the physical distance (Lissoni, 2001). This approach involves an environmental or a systemic

³ 'A small world network' refers to a network that has a short path length and a fewer number of linkages between actors in knowledge exchange; contrary to this concept, there is 'a random network' that is a network has a number of links between actors.

arrangement initiated by state level's policies, therefore, it is somewhat overlapped with the literature with an institutional perspective.

Burrows, Edward Graham and Jones (2018) probe the positive correlation between RIS and firm's performance in the US, they suggest that workforce and technical talent in RIS make a contribution to its firms' income growth. The concept of RIS has been developed by regional scientists and economic geographers (Cooke, 2001), yet, it is rarely applied on development studies. On the other hand, Martin *et al.* (2017) and Mckeever (2017) underline the importance of external knowledge's inflows in RIS in order to maintain firms' competitiveness, and Cooke (2001) highlights the importance of policies in providing the incentive-oriented business environment such as attracting investing organisations. This suggestion has a parallel point in the institutional perspective-related literature.

2.3.3. Knowledge exchange: an institutional perspective

Ernst and Kim (2002) study on globally connected networks and its impact on knowledge transmission. Particularly, they acknowledge that knowledge exchange between firms is governed by institutions both formally and informally within the global value chain and IT (Information Technology) facilitates local firms in obtaining new knowledge beyond the restriction of spatial distance. The institutions are formed by relations of markets, buyers, subcontractors, suppliers and strategic partnership in global operations. Yet, the study seems to overlook the roles of knowledge enablers (e.g. education institutions) who stand outside the supply chain. Whereas, Spencer (2003) studies the importance of state's institutions and policies in fostering knowledge exchange, particularly this paper posits that firm's competitiveness can be reinforced by not only knowledge itself but also the configuration of the network engaged in delivering knowledge; that is, the network can be shaped or governed by certain institutions.

2.4. Theoretical Structure of the Thesis

As reviewed, the previous literature provides insights that each role in knowledge exchange taken by the individual, regional and institutional perspective: 1) as an actor, what kind of roles firms have; 2) which environmental conditions are favourable to create innovation; 3) as a third party, how governments, partnership organisations and multinational corporations on the top

of supply chain arrange institutional settings to stimulate knowledge exchange. These varied angles underpin the thesis as well.

On the other hand, to some extent, lacking parts reside in the previous research. Most researchers did not show sufficient accounts why an actor needs certain knowledge, that is, they do not examine knowledge with a base of problem-solving. Thus, it is hard to capture what linkages exist between problems and knowledge and innovation. Moreover, some of actors who consist of a network are missing; particularly researches on supply chain, in which only actors bound by contracting relations are to be investigated. That is, enablers such as partnership organisations and educational institutions are often neglected. As Martin *et al.* (2017) mentioned, there has been little research done on the external knowledge's inflows. Theoretically the innovation literature emphasises on external knowledge that is a significant element in constantly creating innovation, but empirical evidences are still lacking. Lastly, the previous research tends to overlook the direction of knowledge flows, that is, who are enablers or receivers in knowledge exchange. Considering the complexity of relationships in networks, to examine the nature of knowledge directions will help understand hegemonic structure of networks in knowledge exchange.

3. RESEARCH DESIGN

This thesis focuses on a particular case of a network that K-factories formed to exchange knowledge of social compliance. The thesis employs mixed method approach: as a quantitative research, social network analysis (SNA) displays the flows of knowledge exchange in the network and qualitative analysis of interviews and the relevant literature is used to expound on the disparate mechanisms of knowledge diffusion.

3.1. Methods

For data collection, secondary data was collected from existing literature and documents provided by local governments, academic organisations, and support organisations⁴. The secondary data provided a conceptual idea and background information to gauge the overall conditions of the Myanmar garment industry and to understand relationships between actors in networks. Particularly, in-house documents of support organisations such as Korean Garment Association in Myanmar (KOGAM) and SMART Myanmar provided practical details that cannot be found in existing literature.

Primary data was collected while the author was working for SMART Myanmar as a consultant. In cooperation with SMART Myanmar, two different online surveys and interviews were conducted from 18th September 2017 to 12th February 2018. Moreover, there was personal observation via factory visits and dialogues with factory managers and the executive committee of KOGAM which provided additional information. KOGAM helped in reviewing the questionnaires and in encouraging its member factories to participate in the survey.

3.1.1. Target group of the research

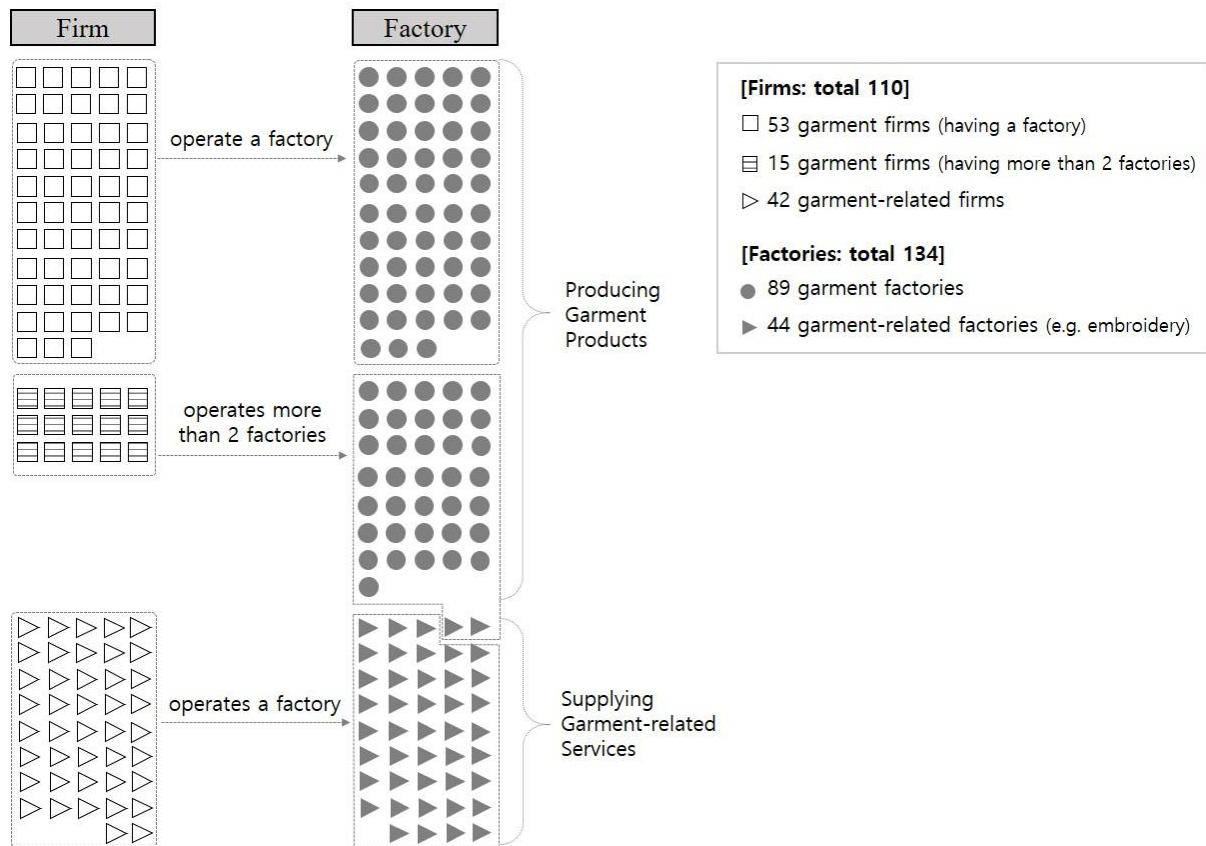
It is difficult to accurately count the number of K-factories since some of them are registered by local owners and its registration has no binding force. According to the in-house magazine⁵

⁴ In Myanmar, there are SMART Myanmar, KOGAM, ILO etc. More detail information can be viewed in the fourth section.

⁵ KOGAM has been publishing the in-house magazine since 2015, written in Korean, named *Thread & Needle* that aims to share business information of Korean garment factories and news in Myanmar. Refer to its website: <https://www.facebook.com/koreanmagazine/>

of KOGAM, there are 110 firms, which operate 134 factories (see Figure 1). The 15 firms of them had 2 to 5 subsidiary factories; and 53 firms had a sole factory (KOGAM, 2017).

Figure 1. Business structure of Korean-owned factories in Myanmar



(Source: own figure based on KOGAM (2017a, 2017b, 2018))

KOGAM consists of members (68 firms) or associate members (42 firms); generally, the members are involved in producing finished garment goods with relatively a big business size, whereas the associate members tend to be a small enterprise that supply garment-related services such as washing, embroidery, and carton box to big-sized factories.

In the paper, the target group is limited as follows:

The target group are the 63 Korean-owned firms that are operating more than one garment factory in the Yangon industrial zones, who are a member (not an associate member) of KOGAM and are manufacturers for only finished garment goods.

Among the 110 Korean-owned firms, 47 firms are excluded from the target group in order to control the homogeneous research conditions in production, since 42 firms⁶ are suppliers of garment-related services and 5 firms are manufacturers of medical wear, backpacks, and wigs. The list and basic information of the target group can be found in Appendix A.

3.1.2. Identification of the actors and networks

The preliminary stage of data collection focused on identifying the actors that compose networks, on which the analysis is based. Actors can be divided into two categories: 1) actors in the supply chain; and 2) actors outside the supply chain. These actors composed of connections that agglomerate together to form the network in which actors share knowledge.

1) Actors (firms) in the supply chain:

In the thesis, supply chain refers to a business network under contracting relations in garment production. Composition of the supply chain can be differentiated by the types of production, yet most factories in Myanmar adopted CMP (Cut, Make, Pack) production of which elements are global brand companies, buyers/agents, raw material suppliers, garment manufacturing factories, logistics and shipping companies, and markets (BIF, 2016).

Figure 2. Garment value chain in Myanmar



(Source: modified the figure from BIF (2016: 13))

Therefore, the supply chain includes K-factories operated by 63 Korean-owned firms (the target group) and other actors that have contracting relations with K-factories.

2) Actors (support organisations) outside the supply chain:

Whereas actors outside the supply chain refer to knowledge enablers that are connected by business and social interests regardless of contacting relations. The thesis defines that their main roles are to provide support programmes and to share knowledge aiming to achieve

⁶ These firms are associate members of KOGAM and engaged in supplying garment-related services, not finished garment goods (e.g. embroidery, washing, printing etc.). Generally, they are small-size enterprises.

economic and social benefits in the garment sector (BIF, 2016). Given that K-factories tend to interact with a limited number of those actors, actors involving directly in sharing knowledge with K-factories were selectively considered for the survey.

3.1.3. Research design and data collection

The structure of the questionnaire was set in accordance with the survey questions, see Table 2; and the questionnaire is viewed in Appendix B.

Table 2. Structure of the survey questionnaires

A baseline survey		Data collection
1) Information of the garment sector	Background information on the garment sector, of which economic and social contributions etc.	Existing literature
2) Business profile of K-factories	Brief history, a relation with the garment sector, business profile, business trend etc.	Existing literature , Online survey-1
Research Q1: structure of the network and knowledge exchange		Data collection
1) Formation of network	Actors inside and outside the supply chain, K-factories' relations with other actors	Online survey-1 & interview
2) Knowledge Enablers	Main enablers from whom K-factories obtain knowledge.	Online survey-2 & interview
3) Barriers in network	Current issues on 1) social compliance; 2) general business; and 3) production.	online survey-1 & interviews
Research Q2: types and proximities of knowledge		Data collection
1) Impact of knowledge type on its flows	Preferred channels in knowledge exchange, methods and materials in obtaining knowledge.	online survey-1, 2 & interviews
2) Impact of knowledge proximity on its flows	Relations with support organisations, local factories, other K-factories.	online survey-1, 2 & interviews

1) *Online Survey-1:*

The online survey-1 has been constructed using SurveyMonkey and conducted from 18th September to 7th October 2017. The questionnaire was prepared by the author and was reviewed by KOGAM to confirm its adequacy and sensitivity⁷ to the members. The target were

⁷ Due to public criticism, generally factories in the sector have a reluctance to share their in-house information.

owners (registered to KOGAM) or managers of 63 K-factories. KOGAM participated in sending the questionnaire by e-mail to its members and encouraged them to participate in the survey. Additionally, a telephone-call survey was conducted to increase the participation rate. Consequentially, 27 firms responded back: 22 firms via the online form and 5 firms via the telephone-call form.

2) Interview:

Following the online survey-1, interviews with three factories was conducted from 13th November 2017 to 16th January 2018, the semi-structured interview with open-ended questions allowed an interviewer to ascertain more in-depth information, which could not be captured in the previous online survey-1. The interviews proceeded in the factories with the Korean owners or managers, and the author had additional chances to observe the scene of production. However, there was no participation of local managers or workers, that is, this survey may have a biased point of view, which would be considered for future research. Ultimately, the main objectives of the interview were to depict how they could obtain knowledge of social compliance; to do this, what materials they used and who main knowledge enablers were.

3) Online survey-2:

The online survey-1 and the interview focused on the problems that K-factories faced and which ways they could tackle them via sharing information and knowledge, whereas the online survey-2 aimed to illustrate the formation of the knowledge sharing network itself but also to probe into channels and materials employed by the factories to obtain knowledge. The online survey-2 constructed using SurveyMonkey and conducted from 23rd January to 12th February 2018, which was distributed by KOGAM via email. Among the 63 target firms, 14 firms responded.

3.1.4. Data analysis: Social Network Analysis (SNA)

The thesis employs Social Network Analysis (SNA) to explore dynamic of knowledge exchange in the network. SNA has been considered a useful technique to examine the structure and patterns of relationships among social entities (Ter Wal and Boschma, 2009; Valk and Gijbers, 2010). The general concept of SNA is that “a social network consists of a set of nodes

connected via some type of relations” (Yang, B. Keller and Zheng, 2017: 5). In SNA, nodes refer to actors that can be individuals, groups, firms, communities or organisations in the network; and relations represent ties and linkages that bind actors together in a certain way (Yang, B. Keller and Zheng, 2017). In this respect, SNA is commensurate to examine not only the structure of the network but also the relations between K-factories and other actors. Particularly, the thesis uses an open-source software, the Gephi (0.9.0 version) to conduct SNA. The Gephi software is an appropriate tool in presenting the flows of knowledge exchange between actors since it is capable to illustrate the directions and frequency of knowledge exchange. That is, SNA in the thesis is structured by *actors* that are both in and outside the supply chain and these actors are connected by *relations* which represent the flows of knowledge. Gephi analysed the data collected from the online survey-2. Based on the results of SNA, the thesis applies different angles: the types (codified and tacit) of knowledge and ties determined by geographical, cognitive, organisational, social, and institutional proximity, which have an influence on knowledge exchange in the network.

3.2. Ethical Considerations

1) *Guarantee of anonymity in the survey:*

While conducting the survey, some of the respondents did not respond the questions regarding sensitive issues such as business profits and labour-related issues even though it was informed of anonymity. A few of them seemed not being interested in sharing in-house conditions with others, which might stem from the experience that K-factories became a target of criticism⁸ in 2016 due to the working conditions at the factories. In fact, some of the information may have a possibility for controversial disputes with the public or governmental organisations or their business partners: for instance, standards of labour-related conditions can be varied by who to set the standards, meaning that local laws can be different with international laws or brand company’s code of conduct. In this regard, preserving anonymity is essential for ethical considerations in the survey. Particularly, any information revealing a firm’s identity such as firm’s name, address, specific governing system and buyer’s name is kept confidential.

⁸ In 2016, a labour rights advocacy organisation named Action Labor Rights (ALR), published a report ‘Under Pressure’ that argued that many Korean-owned factories in Myanmar did not comply with the labour laws on working hours and overtime (ALR, 2016). To refute this, KOGAM and MGMA published a report ‘Weighing the pressure’ grounded on their own research and factors of the laws (KOGAM & MGMA, 2016).

Therefore, the thesis does not contain any firm's personal information and replaces its name with anonymous numbering.

2) *Sharing the results of the survey:*

Little of the business conditions of K-factories are known to the local governments, research institutions, and support organisations in the sector. Even KOGAM can only conjecture the overall conditions of its members without precise data. Thus, the tentative results⁹ of the survey were shared with K-factories via KOGAM in October 2017 and the definitive version of results and insightful suggestions will be delivered to KOGAM and SMART Myanmar in July 2018.

3.3. Limitations

The online survey-1 has 27 data samples, which accounts for around 43% of the total target group. Whereas, the online survey-2 procures 14 data samples, around 22% of the total. Particularly, the online survey-2 designed aiming for the quantitative research with SNA, yet, the results of the SNA may be not representing the whole structure and knowledge flows in the network since there is a possibility of missing data that firms have a considerable influence on the network, which would change the pattern of the results. Although K-factories share analogous characteristics based on their homogenous cultural and ethnic identity, the SNA has a loophole in showing the clear flows of knowledge exchange. Nevertheless, it is still credible in tracing the knowledge flows because qualitative research based on the interview reinforces the insufficient parts of the survey.

⁹ The results were published on KOGAM's in-house magazine, Thread & Needle Vol.10 (2017), and its executive committee was satisfied with the analysed data and copious information.

4. A CASE STUDY: Korean-owned Garment Manufacturing Factories in the Yangon Industrial Zones

4.1. Overview of the Myanmar Garment Sector

Over the past two decades, Myanmar has seen an economic transformation, shifting from the agriculture sector to the manufacturing sector; the contribution of agriculture to GDP (gross domestic product) has fallen by half (around 60% to below 30%), whereas the industrial sector¹⁰ has trebled its share (roughly 10% to 30%) and the manufacturing sector itself has also nearly trebled (approximately 7% to 20%) (Gelb, Calabrese and Tang, 2017). Given that the manufacturing sector heavily relies on the garment sector, the garment industry has been rapidly evolving as one of the leading industries (Kudo, 2012; KOTRA, 2017). Yet, the garment sector has experienced volatility due to the state's political conditions and the prolonged isolation from global markets which has driven Myanmar into a situation of losing opportunities to accumulate knowledge and know-hows, which continues to affect the sector to this day.

4.1.1. The impact of Sanctions on the garment industry

In virtue of the rich natural resources, Myanmar was once an affluent nation relative to its neighbour countries (Ewing-chow, 2007). However, starting with Ne Win's military junta in 1962, Myanmar has fallen into nearly 50 years prolonged military dictatorships until the democratic transitions in March 2016 (Kramer, 2012; ICG, 2016). This political condition has caused the state to be isolated from the international community, and Myanmar became one of the least developed countries in the world in which a large proportion of its people faced a poor standard of living (Ewing-chow, 2007; Kramer, 2012; UN, 2016). For that reason, the US arranged documents of legislation during the 1990s (Rarick, 2006; Ewing-chow, 2007). In turn, economic sanctions were imposed by the US in 2003 in accordance with the 'Burmese Freedom and Democracy Act' to ban the importation of all goods from Myanmar (Rarick, 2006). Besides, the EU, the UK, Japan, and Australia joined sanctions with different levels, however, their impact was regarded as marginal (Rarick, 2006).

¹⁰ According to Gelb, Calabrese and Tang (2017), it includes manufacturing, construction and mining sector.

Although some articles state that sanctions were not significant in order to intervene the domestic issues in Myanmar (Rarick, 2006; Ajmani *et al.*, 2018), but caused extensive damage on the garment sector. Sanctions¹¹ banned all imports from Myanmar to the US, total garment exports sharply dropped by 58% in 2005, and more than 100 garment factories have closed business and roughly 50,000 workers have lost jobs (Kudo, 2008; Ajmani *et al.*, 2018).

Virtually, the sanctions caused restructuring in the garment sector, which diversified its export items and trading partners; in turn, the garment exports could regain by nearly 69% in 2010 and furthermore almost became double in 2015¹² (Ajmani *et al.*, 2018).

4.1.2. Current contribution of the garment sector

After sanctions, around 90% of current garment factories were established by FDI, which mostly focus on export (ARA and EMReF, 2017). This resulted in an outcome that the garment sector itself exported USD 1.56 billion in 2014 as the second biggest export item (KOTRA, 2017)¹³. MGMA expects the sector's growth will be continued and reach USD 8-10 billion by 2020 (MGMA, 2015).

In addition, in terms of employment, the sector provides around 126,000 jobs (BIF, 2016), Furthermore, according to MGMA (2015), the number of employees in the sector is expected to grow up to 1-1.5 million by 2024, which is around 10 times greater than the current number. It is expected that massive formal jobs are provided to the urban poor who do not have a high level of education (BIF, 2016).

4.1.3. The most significant type of production in the garment sector

Even though most locally-owned factories (around 120) focus on domestic markets, the majority of foreign-invested firms including K-factories are engaged in CMP (Cut, Make, Pack)

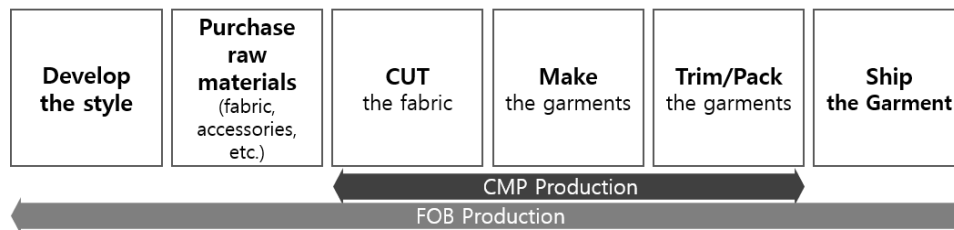
¹¹ Before the sanctions, during the 1990s, the garment sector has seen a significant growth, its export increased by 69 times from 1990 to 2001. There were around 400 factories with more than 300,000 workers, and more than 80% of Myanmar's export to the US was garment products (Rarick, 2006).

¹² Before the sanctions in 2001, the garment export of Myanmar accounted for 938 million UDS; and just after the sanctions in 2005, it dropped sharply to 397 million UDS; however it continued to recover as 650 million UDS in 2010, finally it surpassed the past amount as 1861 million UDS in 2015 (Ajmani *et al.*, 2018).

¹³ In 2014 and 2015, the biggest export item was natural gas, and the second largest one was garment-related products; Myanmar saw that the profits of natural gas exports were 5 times bigger than garment exports (KOTRA, 2017).

production that buyers provide factories all materials such as fabric, package, patterns, and product designs, (BIF, 2016; KOTRA, 2017). That is, CMP factories are only involved in simple manufacturing and low value-added production

Figure 3. Difference between CMP and FOB production-type



(Source: modified the figure from MGMA's website (<http://www.myanmargarments.org>))

4.1.4. Geographical context of the Yangon industrial zones

There are 19 industrial zones across Myanmar, which were set by the Myanmar government in 2005 in order to attract FDI and to promote its manufacturing sector (Masato, 2014; Roberts and Seng Taung, 2015). However, the Yangon industrial zones have a substantially greater size, roughly 3 - 4 times bigger than the second largest industrial zones in Mandalay; moreover, most foreign enterprises are located in the Yangon industrial zones (Masato, 2014; Roberts and Seng Taung, 2015; Phu, 2016).

According to an in-house document (a list of the members in 2017) of MGMA, there are 451 garment-related factories¹⁴ across Myanmar; and the Yangon industrial zones accommodate roughly 200 garment factories. There are largely four industrial zones in Yangon: East, South, West, and North Yangon Industrial Zone¹⁵ (ALR, 2016).

¹⁴ But it is plausible to assume that there are more factories not counted in this number since small enterprises either or garment accessory suppliers are likely not to be registered.

¹⁵ East Yangon Industrial Zone consists of New Dagon (Harbour), North Okkalapa, Shwe Pauk Kan, South Dagon 1, 2, and 3, South Okkalapa, Tharkayta zone; and North Yangon Industrial Zone consists of Hlaing Tha Yar, Minglardon and Shwe Pyi Thar zone (Roberts and Seng Taung, 2015).

Figure 4. A map of the Yangon Industrial Zones



(Source: modified a map of Yangon Industrial Zone from MGMA's website and based on Roberts and Seng Taung (2015; 6))

Initially, the government aimed to foster business clusters within those zones. However, services and infrastructure that can meet international standards are not provided in these zones e.g. industrial infrastructure (wastewater treatment plants, stable electricity supply etc.) or support programmes (research centres, vocational training centres, education facilities etc.) or regulations (safety regulations for workers, clear investment procedures for investors etc.) (Masato, 2014).

Industrial zones are not divided by industry category, which resulted in a mix of various manufacturing factories (e.g. porcelain, chemical, food processing, and agriculture-based manufacturing, etc.) (ALR, 2016). Like others, K-factories do not agglomerate but are scattered across different zones. When having a dialogue with KOGAM, they remarked that this may be caused by the surge in rent price of factory sites. In fact, factories hardly find significant benefits of being together in the same cluster since CMP factories rarely do collaborations with other factories to reduce the costs of procurement, marketing, and training; in fact, they seem to prefer to be in operations individually in any zones in which the rent is significantly cheaper. In this respect, K-factories may not share close geographical proximity with each other.

4.2. Business Profile of Korean-owned Factories

4.2.1. Brief history

South Korea began to invest in Myanmar in 1988 when the Myanmar government adopted an open-door policy to establish joint ventures between state-owned firms and foreign (South Korea and Hong Kong) firms (Kudo, 2008). This resulted in the creation of two joint-ventured garment companies: one was with Daewoo Group companies (South Korea) and another one was with a Hong Kong company (Hong Kong), of which exports accounted for around 95% of total garment exports in 1993 (ibid). However, a demand of US markets increased gradually from the late 1990s until before the sanctions because the US did not impose quotas for knitwear; in turn, garment exports to the US reached around 70% of the total exports (Kudo, 2008).

During the sanctions, once again Asian (South Korean and Japanese) buyers quickly replaced the US's position and influence of Asian markets continued until present (Kudo, 2008; Ajmani *et al.*, 2018).

4.2.2. Contributions of Korean-owned factories to the garment sector

South Korea's investment to the Myanmar garment sector has continued to increase since 2011, which amounted to USD 3.36 billion (accounted for about 7% of the total FDI) in 2015; and this was the second largest contribution to the manufacturing sector after China (ALR, 2016; KOTRA, 2017). In 2017, Myanmar exported around 33% of garment products to Japan, 25% each to the EU and South Korea, and 2.4% each to the US and China (MGMA, 2015).

Moreover, K-factories made the biggest contribution to the local labour market as well, accounted for about 36% of the manufacturing jobs in 2015 (ALR, 2016). In the respect, there is no doubt that K-factories are key business partners along with Japan, the EU and the US, and China in this sector (MGMA, 2015). That is, a tactical approach to sustain K-factories is a critical matter for both the sector's economic growth and workers' livelihoods.

4.2.3. Business profile of Korean-owned factories

K-factories have analogous business portfolios in production and employment, yet, they have a discrepancy in ownership and main buyers, which may have an effect on their governing systems.

1) Ownership and main buyers:

According to the online survey-1, most large-sized factories with over 2,000 employees are a subsidiary having a headquarter in Seoul whereas small/medium-sized factories are owned by individuals. The majority are small and medium-sized with individual ownership. K-factories' buyers are South Korean (33%), Japanese (33%) and the EU (24%). Asian markets are still considerable, but currently the market influence of the US and the EU is growing. It is critical which buyer they have since a buyer has a profound influence in shaping factory's governing systems and social management systems.

2) Production:

According to KOGAM, only two K-factories adopted FOB production, but CMP production is dominant in general. According to the online survey-1, there is a propensity that very small-sized factories are involved in supplying garment-related services (e.g. embroidery, printing, and knitting) to medium- and big-sized factories that produce finished garment goods.

3) Employment:

According to the online survey-1, the average number of employees accounts for 1,187 workers per factory, yet it reaches 1,475 workers with the full capacity in operating lines. On average, workers work 9.8 hours per day (245 hours monthly) and are paid USD 5.3 per day (USD 148.1 monthly). There is no great gap in working hours with other foreign factories, yet K-factories pay nearly 40% more than others¹⁶. In addition, K-factories provide some benefits besides wages such as vehicle to work, education and health service, loans etc. K-factories provide relatively favourable conditions to workers, even though the survey does not show details in other elements of social compliance standards.

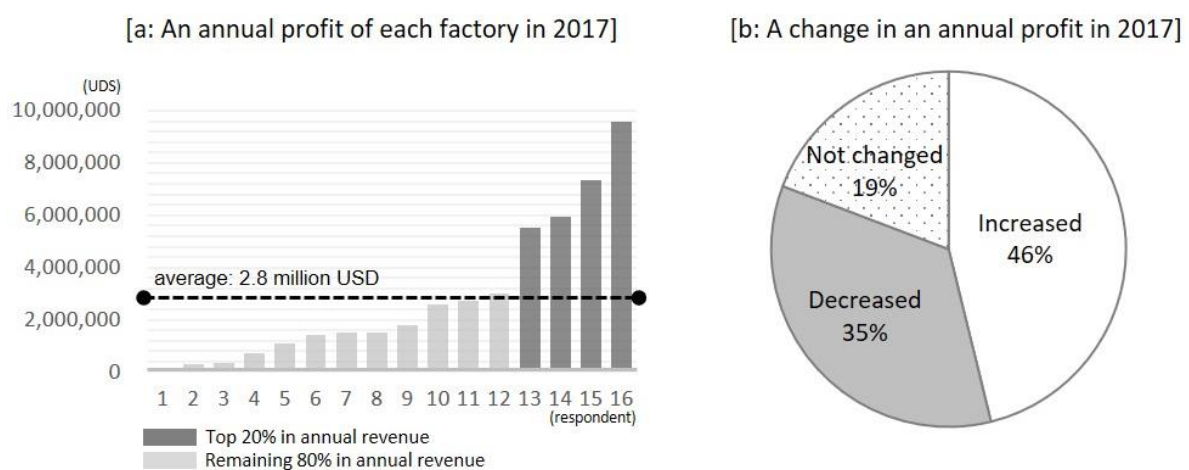
¹⁶ According to ARA and EMReF (2017), the majority of factory workers in Myanmar work 8-10 hours per day and are paid 120,000 MMK (or 89 USD) per month.

4.2.4. Business Trends of Korean-owned factories

1) *A considerable gap between Korean-owned factories*

Figure 5 indicates that there is a significant gap in annual revenue between K-factories: the top 20% of the respondents possess more than half (62%) of the total revenues, whereas the majority (80%) are below average. Moreover, more than a half indicates that they have seen *decreased or not changed income* in 2017 compared to last year, meaning that a considerable number of factories have faced financial instability in operations.

Figure 5. Korean-owned factories' annual revenue and its trend in 2017



(Source: own survey, online survey-1)

2) *Obstacles in upgrading the sector from CMP to FOB:*

According to MGMA (2015), the government has a plan in upgrading the garment sector from the current production type (CMP) to more value-added production types (FOB, ODM, or OBM)¹⁷ that encompass the entire process of production from design to logistics. Yet, there is a prevailing view that the sector is incapable to adopt these models due to inadequate absorptive capacity, underdeveloped infrastructure, and shortage of human resources (MGMA, 2015; BIF, 2016). An interviewee delineates that difficulty of sourcing raw materials at a local level hinders the sector from moving onto a next stage as follow:

¹⁷ It refers to Freight on Board (FOB), Own Design Manufacture (ODM), and Own Brand Manufacturing (OBM).

“It is difficult to source raw materials in Myanmar, this makes the sector difficult in moving on the next stages. ... I think CMP ... would continue to dominate the sector for a while. ... (If local factories start) producing raw materials including textile and garment accessories maybe after 5 or 6 years, then we can consider adopting FOB production. (Source: interview with KF-13)”

3) Expectation and concern on the growth of the garment sector:

The majority (around 80%) of the respondents in the online survey-1 expect constant growth of the sector under favourable conditions: an increase in orders from the US and EU, tax benefits of the US exportation, and infrastructure improvement. In addition, they underline that Myanmar may be the last base of the manufacturing garment industry in Asia in terms of FDI, moreover there is no alternative to replace the current garment sector in Myanmar. However, a few respondents showed concern on the sector due to its unstable political conditions and ethnic conflicts of the Rohingya issue¹⁸, which might cause other sanctions as Myanmar has once experienced.

4.3. Social Compliance Standards in a Perspective of Knowledge

According to the online survey-1, the respondents underline the business constraints that they have been faced recently such as lack of infrastructure, a shortage of workers; a rapid increase in wage, inefficient regulations and policies, social compliance, and lack of financial sources. What is interesting is that social compliance has emerged as a new pressing issue recently.

4.3.1. A matter of sustaining the business

In past two decades, K-factories have focused on Asian markets. According to the in-house document of KOGAM, around 57 % of K-factories focus on Korean and Japanese markets. Around 35 % have both Korean, Japanese and Western (the US and the EU) buyers. Whereas, the share of K-factories that have only Western buyers accounts for about 8%. There is no single factory which has Myanmar buyers.

¹⁸ According to OHCHR (2018), Myanmar is accused of massive ethnic cleansing of Rohingyas and causing 800,000 refugees fled Myanmar to Bangladesh.

However, Western (the EU and the US) market's influence has been rapidly growing after removal of sanctions. In particular, the EU (especially Germany, UK, France, Spain, and Italy) has become Myanmar's primary trading partner since 2016 (about 46% of total exports, approximately 950 million USD), moreover orders from the US continue to grow; whereas exports to Asian markets have shrunk recently, Japan is the second-biggest at 31%, and South Korea stands in third at 16% (ARA and EMReF, 2017; El-shahat and di Canossa, 2018). Factories in the garment sector envisage that how to deal with matters of social compliance would be one of the most pressing issues because if they cannot meet social standards, they may be excluded from global supply chains (Nadvi, 2008; Lund-thomsen and Nadvi, 2010; BIF, 2016).

However, even though it seems that next big buyers will be the US and EU¹⁹, small- and medium-sized K-factories may not be ready to jump on the bandwagon. An interviewee delineated this as below:

“After sanctions, for couple years factories here couldn't obtain orders from European buyers because we were not ready to meet their requirements. But recently, slowly we've started to adopt the certificates of social compliance”(Source: *interview with KF-13*).

Asian buyers tend to pay a higher price for finished garment products and have a few requirements on product quality and safety, therefore, for K-factories it seems no trouble at all in operations only for Asian buyers because there are enough orders from Asian markets for the present, an interview commented this as follow:

“I want to focus on my current (Japanese) buyers because Western buyers have too many requirements, ... moreover they pay lower processing fee compared to my current buyers. But (Western buyers) generally source massive quantity and are not much care about quality contrary to Japanese” (Source: *interview with KF-10*).

That is, small- and medium-sized K-factories may prefer operations without big pressures despite a smaller quantity of order. Yet, for big-sized factories, massive orders from Western buyers are more attractive for bulk production. Besides, according to the interview with KF-13, the income gap between K-factories may be caused by a limited number of buyers whom small-sized factories rely on because having varied buyers help a factory overcome a profit

¹⁹ According to the online survey-1, the major respondents (80%) expected the business growth in Myanmar over the next 5 years due to increased orders from Western buyers.,

aggravation during offseason in operations. Therefore, social compliance requested by Western buyers is, to some extent, a matter of sustaining a business for K-factories.

4.3.2. A matter of employee well-being

The growing market influence of Western buyers implies that they can significantly impact on the garment sector since their requirements on product quality, unit cost of finished garment products, and social compliance standards are different with Asian buyers (Lehmann and Schacknat, 2015; BIF, 2016). This implies that the sector would be restructured by Western buyers; and factories need to change their production environment in line with requirements and standards of Western buyers. For obtaining orders from Western buyers, certifications are required such as BSCI (the Business Social Compliance Initiative) that aims to secure social monitoring systems for ethical sourcing in global supply chain (Lehmann and Schacknat, 2015; El-shahat and di Canossa, 2018). Furthermore, big fashion brand companies tend to have their own standards²⁰ besides BSCI. That is, the buyers push factories to practice social management, which is based on labour-related international regulations (GAP, 2014), in spite of that, it does not mean that all factories which adopted certificates of social compliance show a perfection in practicing social management, there are still cases of non-compliance even among factories which have Western buyers (see the El-shahat and di Canossa, 2018; 19-20). That is, some factories in Myanmar may only focus on the acquisition of international certificates of social compliance and neglect social compliance in practice.

Nevertheless, social compliance driven by buyers has a significant impact to set up an ethical institutional framework for employee well-being since it aims to ensure principles such as: 1) Decent working conditions (e.g. no discrimination, gender equality, safe and healthy workplace, special protection for young workers, the rights of freedom of association, and collective bargaining); 2) Fair employment (e.g. no child or forced labour, fair remuneration by minimum wage, decent working hours, overtime work payment, and social benefits guaranteed by law); 3) Ethical business behaviour (e.g. no corruption); 4) Protection of the environment (e.g.

²⁰ For instance, for sourcing, the US fashion brand, GAP, has its own policies “Human Rights Policy, Code of Business Conduct, Anti-Corruption Policy and Code of Vendor Conduct” that are based on international recognized standards such as “the Universal declaration of Human Rights, ILO Core conventions and the OECD Guidelines for Multinational Enterprises. (GAP, 2014; 2)”

containment of any environmental degradation) (Lehmann and Schacknat, 2015; El-shahat and di Canossa, 2018).

4.3.3. Little emphasis on social compliance as knowledge

Social compliance can be both matters of access to the global supply chain for factories and improving employee well-being as reviewed above. However, the majority of research consider non-compliance on social standards as a matter of lacking morality of business owners (see reports of GAP (2014); ALR (2016); El-shahat and di Canossa (2018)). Yet, in fact, even though factories comply the Myanmar labour laws, they are easily condemned since they could not meet the international social standards. Moreover, novel approaches have been lacking to look at this issue as a matter of factories' incapacity stemmed from a shortage of knowledge sources on social compliance. In this respect, there has been little emphasis on how to deliver knowledge of social compliance to factories. In fact, the survey shows that K-factories have been facing a difficulty in ascertaining relevant information and knowledge in order to adopt the international social standards. Two interviewees elaborated this as follow:

“(Most of) individually-owned factories can't even think of adoption (of the new standards) of social compliance because there are very few workers having experience of it. Furthermore, it is hard to find the relevant information and institutions that provide programmes. In this respect, SMART Myanmar²¹ is the only one which provides (the training) programmes” (*Source: interview with KF-02*).

“we don't have skilful HR managers. Nobody knows what social compliance is and how to do. This may be one of the (main) reasons why we couldn't fully adopt and practice it in our factories. ... we don't have enough resources to conduct social compliance” (*Source: interview with KF-13*).

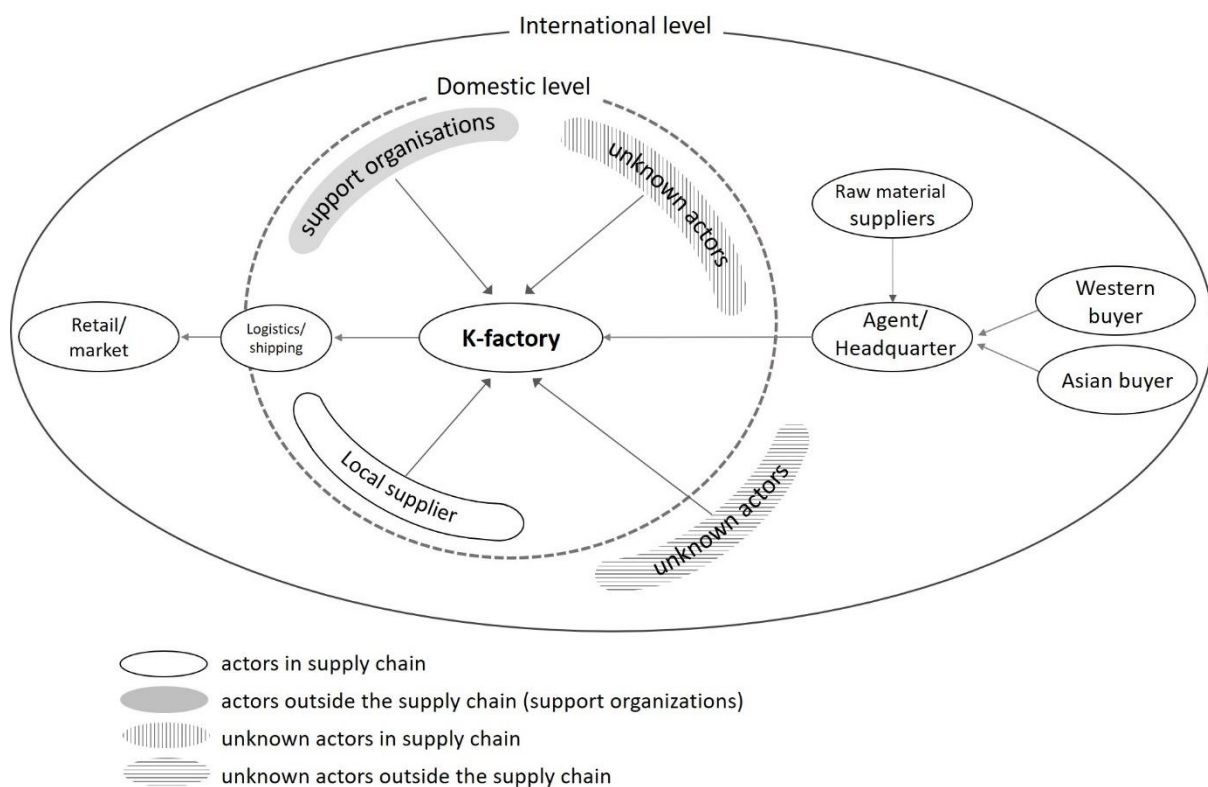
Even though K-factories want to adopt all levels of social standards covering from preparation stages (certification and audits) to practice stages (social management in practice), they are not optimally capable to source its knowledge within the sector. In this respect, if social compliance is considered as a matter of sourcing knowledge, how to foster the knowledge diffusion of social compliance can be another novel approach.

²¹ SMART Myanmar is a project team funded by the European Union to provide support programmes for the Myanmar garment sector.

4.4. Formation of the Network to Exchange Knowledge

The knowledge sharing network is constructed based on connections of actors inside and outside the supply chain, which is intended to connect all potential actors involving in knowledge exchange. Figure 6 shows an overall structure of K-factories' knowledge sharing network based on three cases from the interviews. Moreover, unknown actors both in a domestic and an international level are also considered in the network. Each actor would be active or inactive in the network, which may be contingent upon relationships between actors.

Figure 6. The knowledge sharing networks of the Korean-owned factories



(Source: based on own survey, the online survey-1 and the interviews)

4.4.1. Actors in the supply chain

A supply chain is a network of actors involving in processes that transform raw materials into finished products (Hult, Ketchen Jr, and Slater, 2004). However, this thesis assumes that a supply chain also includes the behavioural interplay in exchanging information and knowledge. For this, three cases of KF-2, KF-10, and KF-13 are investigated to form an overall knowledge sharing network. 1) KF-10 is the individually owned factory exclusively focusing on Japanese

markets, which has not adopted international standards of social compliance since it does not have any Western buyers; 2) KF-13 is a case of the individually owned factory that has more diverse buyers (the EU, South Korean and Japanese buyers); and 3) KF-2 is a subsidiary that has a headquarter in Seoul, South Korea and exclusively focuses on the US markets.

1) *Similarities of the three cases:*

To some extent, it shows a comparable structure in the supply chain since all three adopted CMP production of which basic components can be found such as brand companies, buyers (or agents), raw material suppliers, manufacturing factories (meaning K-factories), subsidiary material suppliers (meaning local factories), logistics/Shipping companies, and retail markets. Among the actors, brand companies, buyers/agents, raw material suppliers and retail markets stand in an international level; and manufacturing factories and subsidiary material suppliers stand in a domestic level, the Yangon industrial zones; and logistics/shipping companies are located somewhere in the middle between an international and domestic level.

In terms of relationships, due to the nature of CMP, K-factories have relatively strong relations with brand companies and buyers rather than others in the supply chain since the overall mechanism of production is arranged by buyers. For instance, buyers provide raw materials (e.g. fabrics and accessories) and logistics and shipping services to K-factories. The three cases have 3 - 5 local subcontractors which are relatively small-volume factories as suppliers of additional garment services (e.g. printing, washing, and embroidery) or products (e.g. carton boxes and thread). These K-factories tend to have limited relationships with local partners, thus they are not even active in sharing knowledge with local factories.

2) *Differences of the three cases:*

Whereas, the three cases show different aspects in operations and relationships with other actors, which is caused by differences in buyers (whether Westerns or Asian buyers) and in firm's governing structure (whether a subsidiary or not). As privately-owned, the owners of case-1 and case-2 are key decision makers in operations, yet, as a subsidiary case-3 is not much engaged in attracting buyers or in operations since its headquarter entirely takes charge of sales, unlike individually-owned factories.

4.4.2. Actors outside the supply chain

Actors outside the supply chain are not directly engaged in manufacturing, yet they are considered enablers of knowledge exchange (e.g. training programmes, consultancy, labour rights advocacy, political negotiation with government bodies, guidelines to the Myanmar laws and information of international standards, etc.) (BIF, 2016). The six actors are elaborated in Table 3.

Table 3. actors (support organisations) outside the supply chain

Actor	Brief description and its performance	Relation with K-factories
MGMA	It is a sub-organisation of UMFCCL, which is presenting the interest of the garment sector's business. It also has a role as a negotiation group to deal with government policies (e.g. minimum wages).	Most Korean firms involving in producing garment finished goods are registered to MGMA. Generally, KOGAM has a close relationship with MGMA to have access to relevant information.
KOGAM	It is an association of the Korean garment factories in Myanmar, which presents the interest of its members and exercises political leverage to the government.	For K-factories, KOGAM is one the most preferable organisation to share business information.
SMART Myanmar	It is a non-profit project funded by the European Union since 2013, of which purposes are to provide support and training programmes to mainly garment factories located in Myanmar with emphasis on resource efficiency and social responsibility.	Some of K-factories participate in the training programmes and seminars, yet it does not seem to show active interaction between them.
ILO	It is an international organisation to promote labour standards and decent work (e.g. tackling child labour and forced labour issues); closely works and consults with MGMA and the government. Recently, the Myanmar office published "ILO Guide to Myanmar Labour Laws 2017" in English, Myanmar and Korean.	Some of K-factories participate in the seminars regarding the Myanmar labour laws, yet the K-factories seem not to have a close relationship with ILO.
Ji-Pyong	A Korean law-firm that provides legal consultancy to K-factories in Myanmar.	There is a propensity that only medium and big sized K-factories use this firm's service due to financial conditions.
KOTRA	It is a Korean government agency to promote international investment for Korean enterprises in foreign countries.	K-factories tend to use this agency occasionally to have access to economic trends.

(Source: BIF, 2016; the internet homepage of SMART Myanmar (<http://www.smartmyanmar.org/>); the internet homepage of the ILO in Myanmar (<http://www.ilo.org/yangon/country/lang--en/index.htm>))

MGMA has a great deal of political influence over the Myanmar government. For any legal business activities in the garment sector, all enterprises need to be registered to MGMA. Consequently, most K-factories have a strong relationship with MGMA. KOGAM is a Korean business community to represent interest of K-factories and to exercise political leverage to the government. It is a self-help community of which main roles fall into: 1) as a knowledge sharing community, it delivers business information to its members; and 2) as an interest group, it collects business constraints from its members then exercises political leverage to government organisations such as MGMA. SMART Myanmar²² is an organisation funded by the European Union, which aims to increase the competitiveness of Small- and Medium-sized Enterprises (SMEs) in the garment sector (SMART Myanmar: 2015a; SMART Myanmar, 2015b). It is one of the most influential organisations in knowledge exchange. ILO²³ is an international organisation which aims to set labour standards, develop policies and provide programmes promoting decent work and job creation (ILO, 2016). Recently, ILO has published ‘ILO Guide to Myanmar Labour Law 2017’ that is a useful source of legal information for factories (ILO, 2017). Furthermore, there is a Korean law-firm, named Ji-Pyong, that provides private legal consultancy for K-factories. Lastly, K-factories obtain general business trends of Myanmar from KOTRA (Korea Trade-Investment Promotion Agency).

In addition, there are other organisations²⁴, however, their objective is to provide a consulting service for a governmental level not for a factory’s level. There are also local NGOs, but K-factories rarely cooperate with them. Thus, those actors are ruled out from the knowledge exchange network.

²² Nowadays it provides training programmes and seminars in regard with energy efficiency, chemical management, capacity building for HR managers, and guidelines on international standards of social compliance and its audits (SMART Myanmar: 2015a). In addition, SMART Myanmar takes a role in mediating between factories, the government and brand companies.

²³ Nowadays ILO has initiated projects in order to eliminate forced labour, strengthen labour governance and enhance decent employment in cooperation with the Myanmar government (ILO, 2016).

²⁴ For instance, there are: 1) UMFCCI which is a national level’s non-governmental organization, but closely connected to the central government, which is representing the interests of the private sector’s business; 2) research organizations and NGOs (CARE Myanmar, Myanmar Development Resource, and Yangon Institute of Economics); and 3) project teams (Shift Project, Pyoe Pin, Centre for the Promotion of Imports from developing countries, etc.) (GAP, 2014; BIF, 2016).

5. ANALYSIS AND DISCUSSION

This section expounds on the dynamics of knowledge exchange in the network and delineates which factors have influence on knowledge exchange of social compliance through SNA.

5.1. The Flows of Knowledge in the Network (Q1)

Figure 7 shows the overall flows of knowledge in the network. In this network, there are: 1) actors (firms) in the supply chain such as K-factories, headquarters, buyers, and fashion brand companies and 2) actors (support organisations) outside the supply chain, which act as enablers of knowledge exchange; such as KOGAM, MGMA, ILO, SMART Myanmar, KOTRA, and Ji-Pyong.

In Figure 7, the network shows the spatial spread of knowledge exchange on both the domestic and international level. The algorithm used in this figure is the Fruchterman-Reingold algorithm which is a force-directed layout algorithm, meaning that the actors who have a higher-level of connectedness tend to converge in the centre of circle. As shown in the Figure 7, some of K-factories and most of actors in the international locale such as brand companies, buyers and headquarters diverge around the edge of circle because they have lower-level of connectedness, this does not mean that they do not have significant connections with other actors in the network since these connections do not show the levels of the importance of knowledge.

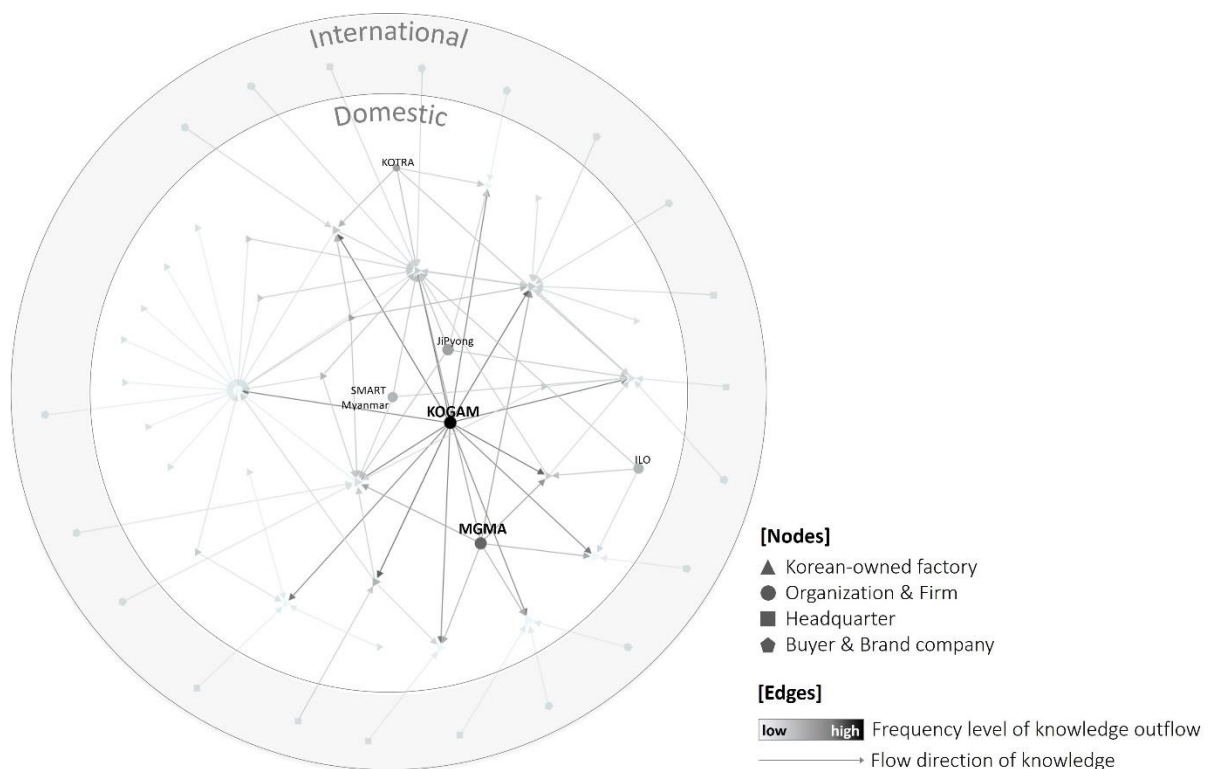
This figure indicates the different knowledge exchange mechanisms that the factories used to obtain knowledge over the past 5 years; there are 56 Nodes and 93 Edges, meaning that 56 actors have 93 knowledge exchanges in the network. Edges connected by actors have a direction (inflow or outflow); thus, an actor can be recognised as a receiver or enabler of knowledge exchange. According to statistical analysis, actors have 1.67 knowledge exchange links on average. Regardless of knowledge direction flow, 35 actors in the network only had one knowledge exchange; and 3 - 6 actors had between 2 - 5 knowledge exchanges. In terms of knowledge direction, 2 actors acted as the most influential enablers of knowledge exchange. The results show that the number of powerful enablers is limited in the network. For more detailed information of the degree report (SNA statistics) please refer to Appendix C.

5.1.1. Enablers in knowledge exchange of social compliance (Q1-1)

1) Support organisations as big influencers in the network:

In terms of overall knowledge exchange, Figure 8 shows the levels of frequency of knowledge outflow in the network. It shows the knowledge flows from knowledge enablers to knowledge receivers. For K-factories, KOGAM (13 outdegree) is the most important organisation. MGMA (7 outdegree) is the second most influential organisation in delivering knowledge to K-factories. A significant finding in this figure shows that the main enablers of knowledge exchange in the network are all support organisations and not individual factories. Each factory shares limited knowledge with other factories compared to the knowledge exchange of organisations therefore, the influence of support organisations in the network is significant.

Figure 8. Frequency of knowledge exchange (outflows)



(Source: own survey, illustrated by Gephi based on the online survey-3)

In terms of social compliance, KOGAM and SMART Myanmar are the most influential enablers in delivering knowledge among the support organisations. SMART Myanmar initiated

a training programme, named the social compliance academy, for factories who are preparing to adopt international social standards (SMART Myanmar, 2015a). Even though there is no official training programme, KOGAM has arranged seminars to share knowledge of a factory which has successfully adopted international social standards but also attracted Western buyers. Yet, the case of KOGAM, knowledge exchange seems to be limited as its programmes are mostly occasional events. In this respect, K-factories do not have many knowledge sources of how to adopt international social standards on the local level.

2) *Brand companies and headquarters as enablers:*

According to the interviewee (KF-2), subsidiary K-factories also obtain knowledge of international social standards from their headquarters and global fashion brand companies. At the initial stage, these two enablers are essential knowledge sources. Particularly, brand companies not only dispatch a team to conduct audits on social compliance but also provide regular training programmes to their manufacturing factories in Myanmar. That is, for ethical reasons and preventing any potential harm on their business; Western brand companies have also, to some extent, engaged in K-factories' social management.

5.1.2. Barriers of knowledge exchange of social compliance (Q1-2)

1) *A shortage of skilful workers in the garment sector:*

As acknowledged by Droege and Hoobler (2003), there is a propensity that knowledge is embedded in individuals as a form of personal value-added and interpreted knowledge. That is, employing skilful workers can be one of the measures to bring new knowledge of social compliance into factories.

However, a shortage of workers has emerged as a critical constraint in operating a factory in the garment sector. According to the online survey-1, a shortage of workers stands as the second biggest constraint after lack of infrastructure²⁵. The respondents claimed that the sector's limited human resources have not caught up with the current expanding demand for a skilled workforce. Even though the majority of workers are sewing machine operators (ARA

²⁵ the respondents highlight the business constraints such as lack of infrastructure (33.3%); a shortage of workers (29.2%); a rapid increase in wage (particularly minimum wage) (20.8%); inefficient regulations and policies (8.3%); social compliance (4.2%); and lack of financial sources (4.2%).

and EMReF, 2017), K-factories seem to have been facing a predicament in employing skilled and qualified workers who are experienced over 1 year. Particularly, middle-level managers are generally in charge of social management at a factory, thus a shortage of workers is also a matter to obtain knowledge of social compliance. An interviewee described this issue as follows:

“It is quite hard (for us) to find skilled-workers. Furthermore, it is nearly impossible to find middle-level’s local managers (in Myanmar); thus, we train them through our own training programmes” (*Source: interview with KF-2*).

The KF-2 interviewee also mentioned that sanctions for nearly 10 years might have caused a situation in which the sector missed the decisive opportunity in developing know-how and important technologies, moreover, international standards of social compliance are considered alien knowledge in the sector, thus they inconveniently need to procure the knowledge from external sources. K-factories are not available to employ local workers who have knowledge and/or skills and experience in social compliance.

2) A rapid increase in wage:

Currently, the sector saw a rapid increase in wages, which has an adverse impact on the factory’s operations but also indirectly on the factory’s social management. Particularly, Myanmar’s National Committee for Minimum Wage has agreed to increase the minimum wage from 3,600 to 4,800 MMK (from around 2.66 - 3.55 USD)²⁶ per day in early 2018 at the nearly 33% increase (Donaldson, 2018). Whilst this is auspicious for workers it can be hampering for factory owners. One interviewee stated why it was a significant matter:

“The sector in which we are engaged is a lower-value industry, thus the minimum wage is our biggest concern now. If wages increase, buyers tend to feel risk in new sourcing because they need to pay more as much as it increased. Moreover, for factory owners, we cannot simply shift this increase onto buyers, thus we are trying to cut the expense ourselves ..., which is not easy because we are already operating factories with a tight budget” (*Source: interview with KF-10*).

An increase in wages cause financial strain on factories, which may also lead to remiss in social management due to financial incapacity. Previously, the low wages in the Myanmar garment

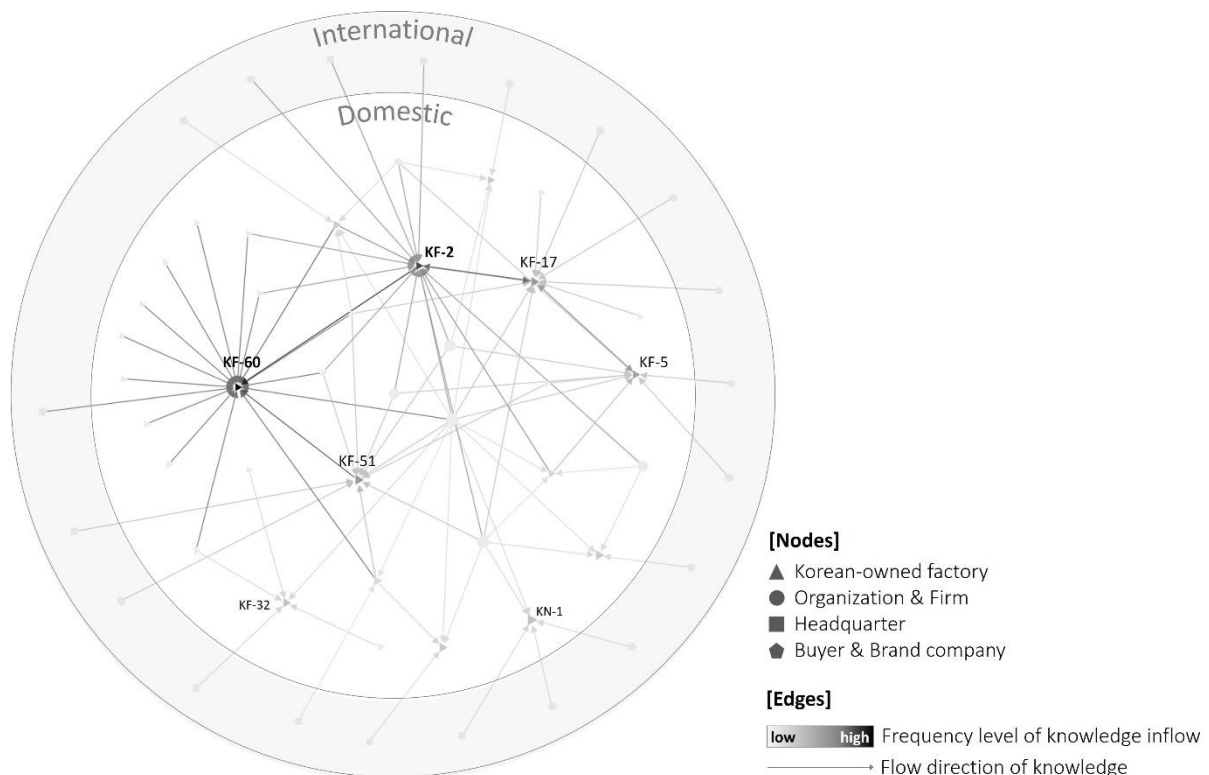
²⁶ The minimum wage was first introduced in 2015 by the government in order to protect labour’s basic rights, which stipulated 3,600 MMK per day (Phu, 2016; ARA and EMReF, 2017).

sector was the most attractive factor of FDI, however, nowadays it constantly increases and levels in which the management finds it hard to keep up. In this respect, as being in an elevated position in the structure of global supply chain, buyers and brand companies need to share the increase of wage to negate the adverse impacts it has on the social management of factories in the sector.

5.1.3. Heterogeneous distribution of knowledge in the network (Q1-3)

Figure 9 illustrates the levels of frequency in inflows of knowledge exchange in the network. The highly frequent receivers of knowledge are KF-60 (18 indegree) and KF-2 (15 indegree); which are a medium-size and a large-size factory respectively; and both focus exclusively on Western markets. As a subsidiary, KF-2 has a headquarter from whom knowledge of social standards is obtained. Whereas KF-60 relies on more local factories and brand companies to obtain this knowledge as it is privately owned. KF-60 seems to have strong ties with individual factories, on the contrary, KF-2 tends to source knowledge frequently from support organisations rather than individual factories. In fact, KF-2 are well known as a substantially renowned factory with experience in the industry including that of social compliance.

Figure 9. Frequency of knowledge exchange (inflows)



(Source: own survey, illustrated by Gephi based on the online survey-3)

Further research may be needed, but Figure 9 suggests three points of significance: 1) firm connections in the knowledge sharing network may be linked to factory's innovative activities such as adoption of new skills and managerial practices; 2) ultimately K-factories are the main beneficiaries among the actors in the network; 3) it seems the levels of knowledge distribution are unequal since knowledge flows are concentrated on a few factories.

In terms of heterogeneous distribution of knowledge exchange, additionally K-factories are hardly interacting with local factories to share knowledge. This could be caused by CMP production system within the global supply chain, in which local factories take a marginal role as subsidiary material suppliers; in fact, they seem to be isolated from this network in terms of both business and knowledge exchange. Moreover, K-factories have lack of closeness in social, cognitive, and organisational proximities with local factories except for geographical proximity. To the extent that knowledge is linked to innovation or firm's income, this uneven knowledge diffusion may consequently cause the asymmetry power relations in developing their business.

5.2. Impact of Type of knowledge on Knowledge Exchange (Q2-1)

5.2.1. Social compliance as codified and tacit knowledge

A problem K-factories face is that knowledge of social compliance is considerably extensive, which encompass: 1) legal knowledge for fair employment; 2) management knowledge for ethical business behaviour; and 3) engineering knowledge for making a decent workplace and ensuring conservation of the environment.

1) *Legal knowledge:*

Legal knowledge is related to the issues of child or forced labour, fair remuneration in accordance with the minimum wage, and decent working hours and overtime work payment guaranteed by laws (Lehmann and Schacknat, 2015). Obtaining the legal knowledge based on the Myanmar labour laws is more associated with information and codified knowledge since legal knowledge can be transmitted via a scripted format. Yet, it is not easy all the time for an individual factory to have access to this information and knowledge since most of its informants are the local government agencies. The respondents claim that the government does not provide a systemic or integrated regulation, and the local language (Burmese) can also be a considerable barrier to ascertain relevant information and knowledge. In turn, individual

factory-owners take a stand with collective actions to deal with the asymmetry power imbalance with state institutions, thus it is the main purpose as to why KOGAM was formed.

However, generally international social standards are more rigorous than the local laws. For instance, international social standards set the minimum working age for employment as no less than 15, but the Myanmar laws allow 14 - 15 years old (Lehmann and Schacknat, 2015). In addition, big fashion brand companies have their own codes of conduct, which have generally more particular standards than both local laws and international standards (GAP, 2014). In this respect, K-factories need to apply the new legal standards as distinct from Myanmar laws. However, international social standards are relatively a new concept in this sector. Therefore, it is not easy to ascertain the legal knowledge itself or to employ workers who have it.

2) *Management knowledge:*

K-factories have a need of managers who can control social standards, particularly practicing fair partnerships with sub-contractors and not involving any acts of corruption (Lehmann and Schacknat, 2015), of which knowledge falls in not only codified knowledge but also in tacit knowledge. In this respect, they are more likely to require highly educated workers at formal educational institutions, which is highly related with codified knowledge (Amin and Wilkinson, 1999). However, a presence of tacit knowledge cannot be discounted since segments of tacit knowledge (e.g. know-hows and work experience) are also embedded in workers. However, manager-level workers who have knowledge and experience on social compliance are rarely employed from a local level; unlike machine operators or common workers. In turn, they need to learn new knowledge or to mobilise relevant workers from foreign countries.

3) *Engineering knowledge:*

Lastly, international social standards require engineering knowledge in order to manage chemical-waste disposal and to provide safe and healthy workplace (Lehmann and Schacknat, 2015). Engineering knowledge is considered as typical codified knowledge as it is more formal and scripted (Amin and Wilkinson, 1999; Mckeever, 2017). Therefore, it can be easily transferred by a person or an organisation. According to the interview, KF-13 has been training their newly hired workers to be machine operators through their own training programme for one to two months. It may imply that if a factory possessed scripted knowledge there would be

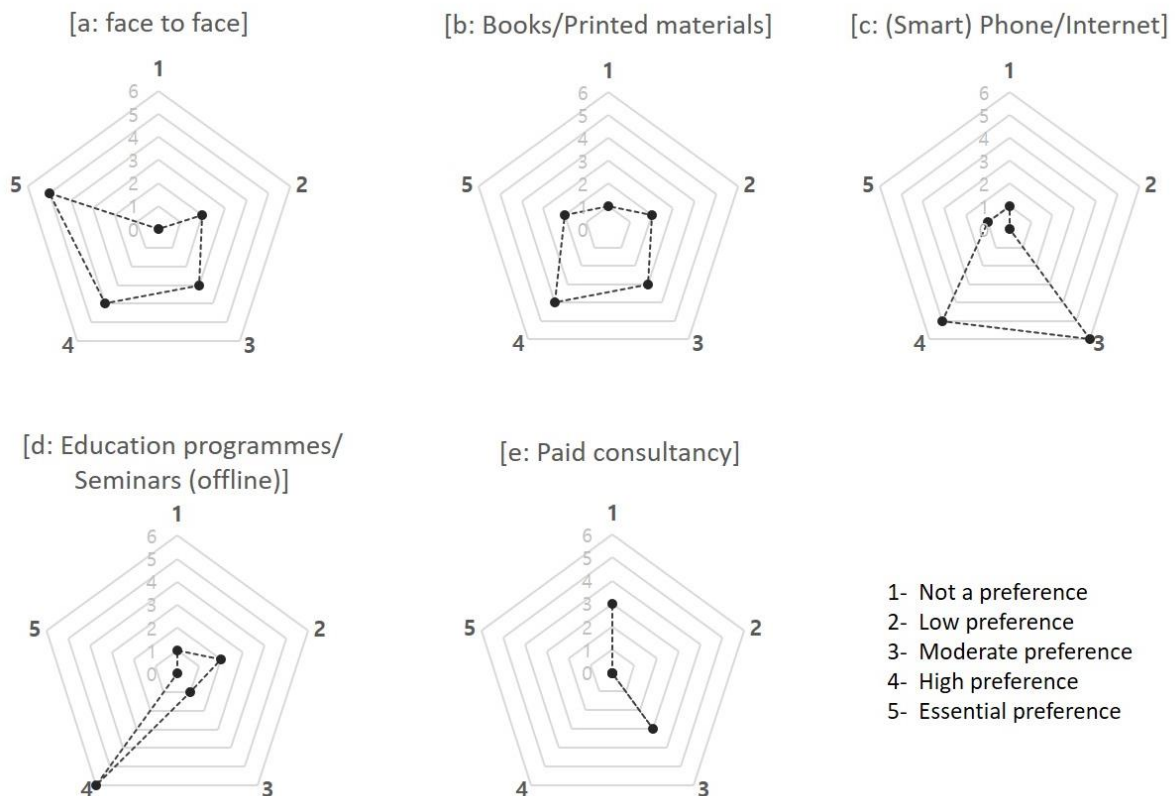
no significant difficulty in sharing the knowledge without external assistance. Yet, how to use the machine efficiently and how to reduce defective products are a different story, which is considered as tacit knowledge since it is personal know-how that can be accumulated via long-term experience or practices. However, given that the Myanmar government does not arrange systemic regulations on safety and industrial waste management, K-factories are also required to ascertain external sources of the engineering knowledge in line with the international social standards.

5.2.2. The process of learning new knowledge of social compliance

1) Five channels for knowledge exchange:

Figure 10 shows the extent and mechanisms that K-factories engage in knowledge exchange. Five channels were identified: (a) face-to-face; (b) book/printed materials; (c) smart phone/internet; (d) educational programmes/seminars (offline); and (e) paid consultancy.

Figure 10. Preference on methods for knowledge exchange



(Source: own survey, the online survey-3)

Among them, the most preferable method is face to face (a), which may be based on high levels of trust (social proximity) or a convenience to learn new knowledge particularly associated with tacit knowledge. The interviewee (KF-2) stated that “face-to-face is the best way to learn details of knowledge, practical knowledge, and personal know-hows which could not be learnt by books.” Even though there is a multitude of information on the internet or in books, they still seem to prefer face-to-face to exchange knowledge.

In terms of moderately preferred methods, book/printed materials (b) are highly associated with codified knowledge due to the transmittable nature in a scripted form as the literature defined (Amin and Wilkinson, 1999; Mckeever, 2017).

Smart phone/internet (c) is a useful tool for information exchange rather than knowledge since it is easy to travel without sophisticated processes of learning or internalising. K-factories have a moderate and high preference on this. Nowadays, SNS (Social Networking Service) has accelerated this phenomenon; according to KOGAM, K-factories instantly share information via a group-chat application on smartphone. Generally, they share simple information such as current trends of economy and policies, upcoming events etc. They can interact each other in real time beyond geographical limits. However, according to the interviewee KF-2, this is not preferred for sharing more complex and important knowledge.

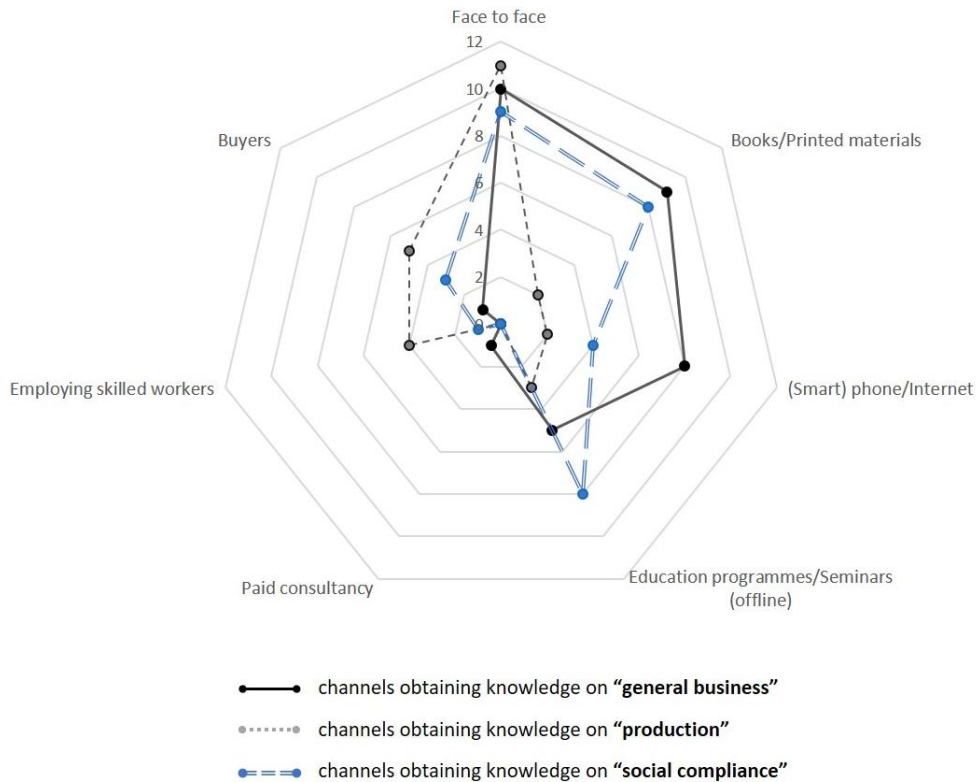
Education programmes/seminars (d) can be related to codified but also tacit knowledge, which are mostly provided by support organisations such as MGMA, SMART Myanmar, and ILO. It clearly shows that K-factories have a high preference on educational programmes, which indicated the same result of Figure 8.

Paid consultancy (e) is the least preferable method since the majority of K-factories are small medium enterprises and privately-owned factories, therefore they may be highly sensitive to cost; however, some of larger K-factories are in a better financial condition to consult their management operations with a Korean law-firm (JiPyong law firm).

2) Preferred channels for knowledge exchange of social compliance:

Figure 11 shows K-factories’ distinct preferences on seven channels when obtaining three categories of knowledge: general business, production, and social compliance knowledge.

Figure 11. Preferred channels for knowledge exchange



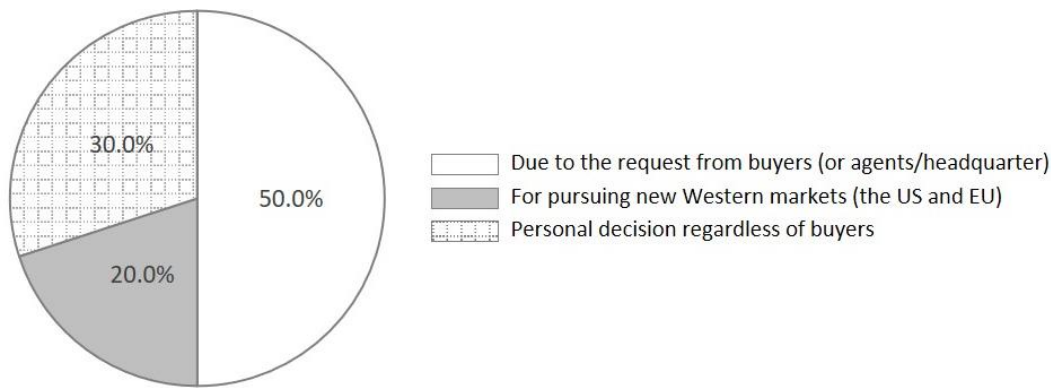
(Source: own survey, the online survey-3)

The findings show that face-to-face is highly preferred for all categories, these interactions are facilitated by high levels of trust that K-factories consider significant. Yet, knowledge exchange of social compliance via face to face is not frequent compared to other two categories of knowledge. This may imply a situation that even though K-factories want to obtain this knowledge via face-to-face meeting, not all knowledge can be sourced this way and at close geographical proximities because social compliance is a relatively new concept of standards, rules, and regulations.

For knowledge regarding general business and social compliance, they show, to some extent, an analogous pattern. This can be understood that social compliance broadly fits under the category of general business. Yet, what is different is that K-factories rely more on the channels of educational programmes/seminars and buyers; and rely less on the channels of smart phone/internet when they obtain knowledge of social compliance. As alien knowledge for K-factories, they try to assimilate it through not only codified knowledge via book/printed materials and educational programmes but also tacit knowledge via face-to-face interacting.

Given the complex nature of its knowledge, smart phones/internet may not be appropriate in sharing this knowledge. Buyers also take a role in delivering the knowledge, which is however not highly significant. As indicated in Figure 12, K-factories consider either adopting the international social standards due to request of buyers (accounts for 50%) or due to potential orders from the US and EU (20%). In this respect, buyers are the main determinant of the knowledge acquisition, therefore, buyers should take a more active role in delivering new knowledge to the factories which do not have sufficient knowledge and relevant human resources.

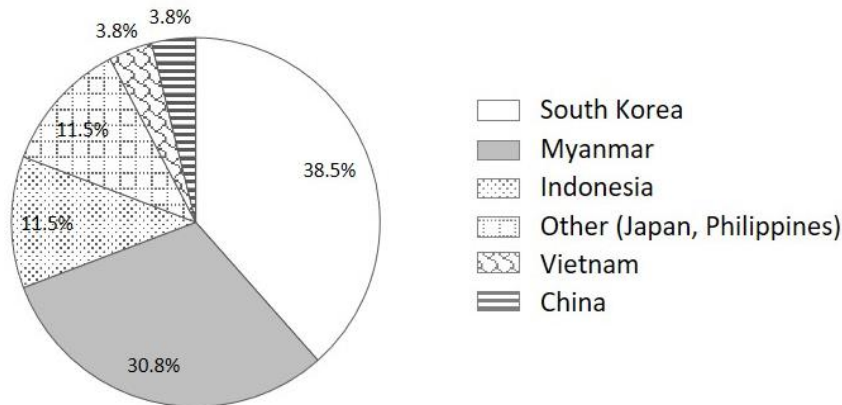
Figure 12. Reasons of consideration in adopting social compliance



(Source: own survey, the online survey-3)

For the knowledge regarding production, channels of buyers, and employing skilled workers are relatively preferable. This may imply that the high influence of buyers on a CMP production system since the factories exclusively comply with buyer’s requirements. What is interesting is in Figure 11 is that K-factories rely more on the channels of employing skilled workers when obtaining the knowledge of production. Employment is a convenient method to absorb codified and tacit knowledge into factories (Howells, 2002; Oakleaf, 2007). As Figure 13 indicated, the skilled workers of K-factories are predominantly from foreign countries (nearly 69%) such as South Korea, Indonesia, Japan and Philippines, and Vietnam; whereas the Myanmar skilled workers only account for around 31%. However, employing workers for social compliance seems a bit premature since there is a few manager-level workers who have relevant experience and knowledge in the sector but also K-factories have just started to consider the adoption of international social standards at present. Furthermore, they may train existing managers at their factories rather than source additional employment.

Figure 13. Nationality of foreign skilled workers/engineers



(Source: own survey, the online survey-3)

3) The process of learning new knowledge of social compliance:

K-factories employ a variety of channels in order to obtain knowledge of social compliance in both forms of codified and tacit knowledge. Particularly, the process of internalizing knowledge as one of functions of tacit knowledge is also noteworthy. An interviewee described this as follow:

“For social compliance, our buyer dispatched a team (to the factory) to conduct audits and a training programme. Thus, we could obtain its knowledge from the buyer. Moreover, a manual (on how to understand and practice the international social standards) was given by the headquarter. But, ... it is quite hard to learn the knowledge solely through the written form because we cannot capture details from it. ... Social standards are not much different with international laws and regulations, ... Even you can find many materials on the internet. But its practice is a different story because each factory has a different situation and each manager has a different idea on it. ... We have been gradually developing the social management, which never learned by the manual”
(Source: interview with KF-2).

This interview indicates the process of learning social compliance as new knowledge. At the initial stage, KF-2 could learn fundamental knowledge of social standards through the codified manual. According to the interviewee, the factory of KF-2 could learn most of the knowledge from the manual, yet it was not sufficient to wholly assimilate it or to apply it in practice.

Therefore, the factory needed to learn by trial and error in practice. In the respect, tacit knowledge was involved in facilitating and internalizing the knowledge. For KF-2, tacit knowledge was essential to complete the learning processes of social standards after obtaining codified knowledge. Eventually, KF-2 made an acquisition of practical experience and know-

how that were embedded in the factory after putting considerable time and efforts. KOGAM arranged seminars to share the best practices of social compliance and know-how of KF-2 in 2017, which showed how tacit knowledge is circulated within a certain network and a geographically bounded territory. K-factories have necessitated to absorb knowledge of social compliance from buyers or headquarters existing at international levels at the initial stage because they are unaccustomed to this new knowledge, but once absorbed in certain organisations it could be easily shared and diffused within a region.

5.3. Impact of Proximity on Knowledge Exchange (Q2-2)

5.3.1. Impact of geographical proximity

Geographically, the figure can be divided into both the international- and domestic levels as illustrated in Figure 7. Even though this figure cannot capture the levels of importance of knowledge, it indicates that K-factories source knowledge actively within the domestic locale rather than internationally; the share of knowledge exchanged domestically accounts for 78%.²⁷ Domestic exchange encompasses Yangon industrial zones to Yangon city, in which other foreign and local factories, private firms and support organisations are located. This implies that the geographical proximity may be a significant factor in the diffusion of knowledge.

Most knowledge on legal information, business trends and government regulations more codified in nature, which can be predominantly sourced domestically. The literature (Amin and Wilkinson, 1999; Lissoni, 2001) acknowledges that codified knowledge is less sensitive to geographical proximity, however, the survey findings are not consistent with the literature. The main knowledge providers (the local governments and MGMA) are bound by domestic geographic location, codified knowledge would also be limited by geographical proximity. Yet, this codified knowledge seems to be easily shared on SNS within the network.

On the other hand, knowledge of social compliance and skilful workers (as containers of knowledge) is composed of both codified and tacit knowledge, which is spatially spread both domestically and internationally. The industry has not had adequate catch up time in accumulating the knowledge but also cultivating human resources due to the Myanmar's

²⁷ SNA shows that there are 20 edges (connections between actors, that is, flows of knowledge exchange) in the international level and 73 edges in the domestic level among total 93 edges.

prolonged isolation and sanctions. Consequently, the sector does not have many alternatives but to ascertain strategic knowledge and skilful workers from international actors. As reviewed the case of KF-2, codified knowledge of social compliance is transmitted relatively without restriction of geographical proximity, but on the contrary tacit knowledge involving know-hows, personal experience, and internalizing learning is bound geographically. Moreover, there is a propensity that tacit knowledge is exchanged based on high levels of trust whereas codified knowledge is sourced by actors without the need of high levels of trust (contingent on absorptive capacity of firm and open or closed levels of information). Martin *et al.* (2017) posited, this survey confirms that even though knowledge can be highly sensitive to the geographical proximity, new knowledge from extra-regional sources acts as an essential continuum in fostering and facilitating innovation.

5.3.2. Impact of other proximities

Along with geographical proximity, the survey investigates aspects of the other four proximities: cognitive, organisational, social and institutional proximity.

1) *The effect of cognitive and social proximity on knowledge exchange:*

According to the online survey-1, the majority (76%) of K-factories rely on their Korean business networks, which refer to both connections with KOGAM and individual factories. This is because there is a high level of trust between their own networks and they are more convenient to communicate with. Although they utilize local networks, they do so only to obtain simple information. This phenomenon can be understood by the proximity literature of knowledge.

Given that they share the same language, social norms, culture, and business interest, closeness in both cognitive and social proximities between K-factories are significant. At the initial stage, they might be loosely bonded by social proximity, yet, the network might have evolved within the boundary of cognitive proximity based on business interest and shared values (Molina-Morales, García-Villaverde and Parra-Requena, 2014).

2) *The effect of organisational proximity on knowledge exchange:*

After KOGAM was founded in 2001, K-factories moved onto the next stage which was arranged by the organisation, KOGAM. Nowadays they share knowledge not only based on an

individual bond (cognitive and social proximities) but also based on levels of trust facilitated by KOGAM (organisational proximity), but this framework initially stemmed from social proximity in consideration of their homogeneous culture. The knowledge exchange between KOGAM and MGMA is driven by the same line of organisational proximity based on the common values in terms of business interests (cognitive proximity).

3) *The effect of institutional proximity on knowledge exchange:*

As the literature defined institutional proximity as the degree of collective activities in sharing knowledge, governed by formal and informal institutions (Boschma, 2005; Hong and Su, 2013), K-factories (individuals) give authority to KOGAM (organisation) based on informal institutions (cultural norms) in order to exercise collective activities in sharing knowledge and in negotiating with the umbrella organisations such as MGMA, government agencies, and international organisations. KOGAM has engaged in lobbying the government and exercising political leverage in order to reform regulations (e.g. the minimum wage) that is closely linked to their own business interests.

However, the network between MGMA and K-factories is more related to formal institutions since garment factories must be registered to MGMA for any business activities by Myanmar laws. In other words, the ties between KOGAM and MGMA have been initially engendered by regulations.

On the other hand, the network between K-factories and buyers/ brand companies (or headquarters) is connected by contracting relations (formal institutions). Therefore, the actors in this network have, to some extent, hierarchical relations in contrast with other ties above.

4) *Actors' ties and knowledge exchange:*

The survey confirms that the networks among K-factories, KOGAM, MGMA, buyers, and headquarters are deemed to have strong ties that are significant in sharing information and knowledge as many scholars posited in their research (Amaral *et al.*, 2000; Cowan and Jonard, 2004; Fritsch and Kauffeld-Monz, 2010). Particularly, ties which are embedded in the network of KOGAM; facilitate rapid sharing of information and knowledge and foster the collective activities for problem-solving arrangements to deal with business constraints such as a solution for a rise in the minimum wage (Fritsch and Kauffeld-Monz, 2010). On the contrary, the knowledge exchange between K-factories and local factories is marginal since they have weak

ties in term of cognitive-, social-, and organisational proximity although they are connected each other by institutional proximity, meaning regulations stipulate that firms must be registered to MGMA. Nevertheless, it is noteworthy that ties formed by formal institutions (institutional proximity) may help the network members to be connected beyond spatial limits (Ter Wal and Boschma, 2009).

6. CONCLUSION

The thesis explored a network in which K-factories exchanged knowledge with other actors to ascertain key knowledge of social compliance. The findings infer that knowledge exchange is fostered or hampered by various factors which can be a matter of knowledge itself or a matter of relations between actors in the network.

SNA was conducted on the 63 Korean-owned garment firms in Myanmar industrial zones to answer two research questions: Q1) the mechanisms and interplay of knowledge exchange in a network which K-factories obtain knowledge of social compliance; Q2) influential factors in knowledge exchange of social compliance. To examine the dynamics of the knowledge exchange, this thesis considered pertinent literature such as the types of knowledge: codified- and tacit knowledge and different dimensions of proximity: geographical-, cognitive-, social-organisational- and institutional proximity. Particularly, how these proximities act as essential determinants in knowledge exchange. From the SNA results which are based on the two separate online surveys and interviews, the following section provides a summary of the findings and suggests further research considerations in this area.

6.1. Summary of the Findings

1) *The hegemonic structure of key actors:*

The results of the SNA show that K-factories mobilize varied resources of knowledge from actors (firms) in the supply chain (individual factories, headquarters, buyers, and brand companies) and from actors (support organisations) outside the supply chain (KOGAM, MGMA, SMART Myanmar, ILO, KOTRA, and Ji-Pyong). The results show that there is a clear hegemonic structure in which a few key actors acted as knowledge enablers. For K-factories, KOGAM, SMART Myanmar, headquarters and brand companies have the most influence in delivering knowledge of social compliance. However, a shortage of skilled workers in the sector acts as a barrier which hinders actors from obtaining knowledge since some K-factories have difficulty in employing local workers who have knowledge or experience in social compliance.

2) *Asymmetric distribution of knowledge:*

In terms of distribution of knowledge exchanges, it appears that knowledge exchange is unequally diffused among actors. Few K-factories monopolize knowledge sources through higher levels of connections with other actors in the network. If knowledge is considered as a key element for innovation, this asymmetric distribution would have a negative influence on factories which are on the periphery of the knowledge network. In this respect, there is a need of policy arrangements that aim to integrate actors in the network and facilitate open learning systems, high levels of trust, and significant levels of integration between firms, organisations, and educational institutes in the network. (Cowan and Jonard, 2004).

3) *The internalized effect of tacit knowledge:*

Knowledge of social compliance encompasses legal-, management-, and engineering knowledge, which consists of both codified and tacit knowledge. To obtain this extensive knowledge, K-factories use various channels: face-to-face, books, printed materials, smartphones, internet, educational programmes/seminars, paid consultancy, employing skilled workers, and brand companies. Unlike the knowledge of general business functions and production, the knowledge of social compliance is hard to source at the local level since it is a relatively new concept in the Myanmar industry. For K-factories there is a need to procure and to absorb it from external sources (brand companies) in a form of codified knowledge, and then go through the processes of knowledge internalization. The literature and findings suggest that tacit knowledge helps this new knowledge to be embedded in the factories. Codified knowledge can be diffused irrespective of geographical proximity, but social compliance is still somewhat esoteric knowledge to new learners which can be difficult to codify.

4) *The spatial agglomeration of codified knowledge in the network*

Whilst codified knowledge is less sensitive to geographical proximity, there are instances in which this codified knowledge is also spatially bound to certain geographic locales. In the case of hegemonic knowledge providers being bound to certain locations, codified knowledge can be limited by geographical proximity, which is somewhat conflicting on the literature of knowledge flows.

5) The effect of institutional proximity and knowledge exchange between actors:

K-factories have formed networks based on diverse types of ties which are contingent on cognitive, organisational, social and institutional proximities. These networks have been engendered by an ethnic and cultural community, which helped facilitate the formation of strong ties not only with other K-factories based on cognitive and social proximity but also with KOGAM based on the organisational proximity. These strong ties enabled K-factories to share knowledge and arrange collective actions for problem-solving approaches within their exclusive network. Whereas, knowledge exchanges between K-factories and local factories are marginal since they have weak ties. However, institutional proximity in the form of MGMA acted as a bridge between all actors in the network. In this respect, institutional proximity may help span boundaries beyond negative community lock-in and spatial limits through formal institutional arrangements by the government.

6.2. Future Research

The thesis employs SNA to understand the structure of the network and the knowledge flows. Yet, it may be not enough to represent the complete mechanism of the network due to the shortage of data samples, among the 63 K-factories 14 data samples are used for SNA, which covers around 22% of all actors in the network. That is, the SNA may be subject to the amount of data samples. Even though the thesis employs the qualitative method based on interviews to bridge the gap of quantitative data, the thesis suggests a more explicit SNA with sufficient data samples.

This research design can be applied to entire networks in the Myanmar garment sector to understand holistic knowledge exchange between all actors in the sector. Moreover, research that aims to investigate how adoption of social compliance impacts social innovation at factories can be helpful to understand the direct correlation between the two concepts. Understanding the links between social compliance and social innovation can act as a source of value added for firms in the industry.

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Appendix A: A list of the research target group

Firm's anonymous number	No. of owned Factories	Main Buyers*	No. of Employees	No. of Production line	Participation of the survey		
					online survey-1	online survey-2	interview
KF-01	2	mixed	5,000	45			
KF-02	2	only Western	1,900	No info	Yes	Yes	Yes
KF-03	1	only Western	1,200	10			
KF-04	3	only Western	2,800	21			
KF-05	1	only Western	1,100	10		Yes	
KF-06	1	mixed	900	13	Yes		
KF-07	1	only Asian	600	6			
KF-08	1	only Asian	2,600	19	Yes		
KF-09	1	only Asian	1,300	10			
KF-10	2	only Asian	3,250	17	Yes	Yes	Yes
KF-11	1	only Asian	600	20	Yes		
KF-12	1	mixed	1,000	10	Yes	Yes	
KF-13	2	mixed	2,350	26	Yes		Yes
KF-14	1	mixed	1,150	8			
KF-15	1	mixed	600	6	Yes	Yes	
KF-16	1	only Asian	500	22			
KF-17	2	only western	3,900	29	Yes	Yes	
KF-18	2	mixed	2,700	24			
KF-19	2	only Asian	1,850	16	Yes		
KF-20	1	only Asian	2,100	15			
KF-21	1	only Asian	1,000	10	Yes		
KF-22	1	only Asian	1,000	7			
KF-23	1	mixed	500	No info	Yes		
KF-24	3	mixed	3,200	28			
KF-25	1	mixed	1,200	24	Yes		
KF-26	1	only Asian	1,000	14			
KF-27	1	only Asian	600	10	Yes		
KF-28	1	only Asian	600	6			
KF-29	1	only Asian	1,300	14			
KF-30	1	only Asian	1,000	No info			
KF-31	1	only Asian	630	7	Yes		
KF-32	1	only Asian	610	8		Yes	
KF-33	1	only Asian	750	7			
KF-34	3	only Asian	5,000	41			
KF-35	1	only Asian	1,000	13			
KF-36	1	only Asian	600	No info			
KF-37	2	only Asian	3,000	33	Yes		
KF-38	1	only Asian	1,000	8			
KF-39	1	only Asian	380	7			
KF-40	5	only Asian	7,220	100			
KF-41	1	only Asian	700	10			
KF-42	1	only Asian	600	6	Yes	Yes	
KF-43	2	mixed	1,450	13	Yes		
KF-44	1	mixed	650	7			
KF-45	1	mixed	2,000	16			
KF-46	1	mixed	3,200	18			
KF-47	1	mixed	500	5			
KF-48	1	mixed	450	6	Yes		
KF-49	2	mixed	4,600	22			
KF-50	1	mixed	900	9			
KF-51	1	only Asian	1,800	15	Yes	Yes	

KF-52	1	only Asian	850	9			
KF-53	1	only Asian	600	6	Yes		
KF-54	1	only Asian	900	16		Yes	
KF-55	1	only Asian	1,800	11	Yes		
KF-56	1	mixed	670	10			
KF-57	2	only Asian	2,850	23			
KF-58	1	only Asian	800	8	Yes		
KF-59	1	only Asian	870	16			
KF-60	1	only Western	1,000	10		Yes	
KF-61	1	No info	No info	No info	Yes		
KF-62	1	No info	No info	No info	Yes	Yes	
KF-63	1	No info	No info	No info			
No. of not identified firms**					2	2	-
Total		-	-	-	27	14	3

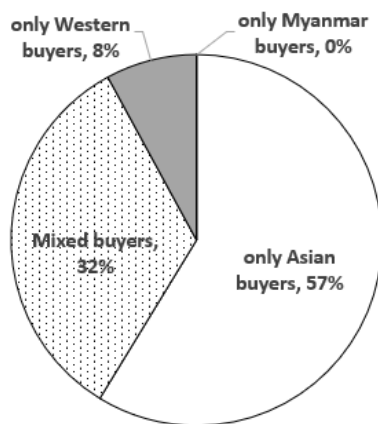
* **'main buyers'**: in the table, Asian refers Japanese and Korean buyers, and Western refers the US and EU buyers.

** **'not identified firms'** means that the firms did not give information of their name on the survey, thus the survey could not identify them.

(source: own survey and KOGAM (2017a, 2017b, 2018))

[General business information of the Korean firms owned more than a factory in the target group]

- **Average number of owned factories:** 1.33 firms
- **Main buyer of the firms by percent (Number):**
 - the firms having only Asian buyers (Korean and Japanese): 57 % (37 firms)
 - the firms having mixed buyers (Korean, Japanese, the US and EU, etc): 32% (21 firms)
 - the firms having only Western buyers (the US and EU): 8% (5 firms)
 - the firms having only Myanmar buyers: 0 % (0 firm)



- **Average number of employees:** 1,574 persons
- **Average number of production lines:** 17 lines

Appendix B: Questionnaires of the survey

[Online survey-1]

An online Survey on the Korean-owned Factories in Yangon, Myanmar

[NOTE] the questionnaire was originally written in Korean for the survey.

Title	An online survey on the Korean-owned garment manufacturing factories in Yangon, Myanmar
Subject	To understand their business conditions and constraints in running their factories
Target Respondent	Korean owners of garment factories in Yangon, which are membership of KOGAM
Survey Tool	Online survey (SurveyMonkey)
Survey Procedure	1) Completion of the survey questionnaire and confirm by SMART: September 7 2) Making it as an online form (SurveyMonkey): September 12 3) Review and confirm by KOGAM: September 11 ~ 14 4) Final revision: September 15 5) Online survey: September 18 ~ October 7 (20 days) 6) Collecting survey data and making a report: ~ October 13 7) Sharing outcomes of the survey with KOGAM: ~ October 20 8) semi-structured interviews with 3 to 6 factories will be planned based on the results of the survey

1. Introduction

This survey is conducted by KOGAM and SMART Myanmar. The aim of the survey is to understand the current business conditions of the Korean-owned garment factories in Yangon. We firmly inform that the survey will be kept strictly confidential; and its results will be shared with you through KOGAM. The survey will be only used in preparing better support programs for the garment industry in Myanmar. Thank you for your cooperation. If you have any questions on the survey, feel free to contact: **** (**)

2. Questionnaire

Q1. Please fill in the questions regarding your factory profile. If you are not wanting to answer some of them, you can leave blank.

Company name	
Year established	
Investment type	① 100% Korean owned; ② 100% locally owned; ③ Joint-venture
Main buyers	① Korea; ② Local (Myanmar); ③ Europe; ④ USA; ⑤ Japan/Other ()
Annual business avenue	• Annually, total sales amount () • Annually, business profits () • In past 2 years, have you seen increased or decreased profits? ① Increased; ② Decreased

Production	<ul style="list-style-type: none"> • What is the main product (service) of your company? : ①Casual; ②business; ③Children & Baby; ④Accessories (wig, gloves, hat etc.); ⑤ embroidery; ⑥printing; ⑦other • Average monthly production is around (). • And what is the minimum order size in production? () • What kind of machines used in production? ①Washing machines; ②Printing; ③Dyeing; ④Embroidery; ⑤ Knitting; ⑥Other ()
The number of employees	<ul style="list-style-type: none"> • Currently, around () employees. • If factories will have full capacity, around () employees.
Average wage of the employees	<ul style="list-style-type: none"> • Average wage is around () kyat per day / () kyat per month. <i>*including bonus and overtime payment, etc.</i> • Average working hours () per day / () per month. • except wage, what benefits do you provides to the employees? () <i>*e.g. bonus, incentives, special vacation, education opportunity, etc.</i>
Is your company a subsidiary	<ul style="list-style-type: none"> ①Yes ②No • <i>If you said Yes</i>, where (which country) is your head office? ()
Does your company have local subsidiary factories Myanmar?	<ul style="list-style-type: none"> ①Yes ②No • <i>If you said Yes</i>, how many subsidiary factories do you have? ()
Business partners	<ul style="list-style-type: none"> • I have () local partners (sub-contractors) mainly for (to) (). <i>*e.g. I have (10) local partners mainly to (receive material supply).</i> • I have () foreign (including Korean) partners (sub-contractors) mainly for (to) ().
Size of property	<ul style="list-style-type: none"> • Building size: () m2. • How many sewing machines does your factory have? (). • Are your factories leased or owned? ①Leased ②Owned • If leased, is it a long-term (more than 5 years) leased one? ①Yes ②No

Q2. Investment plans and growth trend in the garment industry in Myanmar

Q2-1. Do you expect potentials that you will see the business growth over the next 5 years? ①Yes ②No

: If yes, what are the reasons you perceived? ()

: If no, what are the reasons you perceived? ()

Q2-2. What made you start your business in Myanmar?

: ① low level of wages; ② geographical conditions (close to Main markets); ③ high quality of local labor's skills other; ④ affordable electricity charge; ⑤tax benefits/other incentives; ⑥ labor's working attitude; ⑦well-organized industrial complex (cluster); ⑧growth potentials of the local market in future; ⑨other ().

Q2-3. Do you have plans on investment in future (next year or next five-year)? ①Yes ②No

: If yes, are the plans related to employment? ①Yes ②No

: If no, what are the plans for? ()

Q3. Relations and Business network

Q3-1. Is your company(factory) a member of MGMA? ①Yes ②No

: If not, what is a main reason? ()

Q3-2. What is your expectation on the roles of MGMA in supporting your business in Myanmar? ()

Q3-3. As a membership of KOGAM, What is your expectation on the roles of KOGAM in supporting your business in Myanmar? ()

Q3-4. Are you registered to other business associations except MGMA and KOGAM? ①Yes ②No

: If so, what is the name of them? ()

Q3-5. What kind of business networks do you rely on when you are facing challenges in running your factories?
: ① Local business network; ② Korean business network; ③ foreign business network; ④ other
: What is the main reason you rely on certain network you answered above? ().

Q4. Logistics and Customs

Q4-1. Do you feel that import/export related facilities (domestic delivery, distribution, and shipping to foreign markets) have been improved in past 2 years? ① Yes ② No

Q4-2. Roughly what percentage of materials come to you shipped?
① ()% by sea; ② ()% by road; ③ ()% by air

Q4-3. Have you ever used a trucking company to import materials or export your products to foreign countries such as China and Thailand, etc.)? ① Yes ② No

Q4-4. How long does it take approximately in customs procedure? () days

Q4-5. What is the urgent challenges regarding logistics in Myanmar you have perceived? ()

Q5. Perceived constrains in running your factories

Q5-1. What have you been facing with the most difficulty when starting your business in Myanmar?
: ① finding local business partners; ② regulations (social compliance etc.); ③ complicated bureaucratic procedures; ④ financial issues; ⑤ finding vendors (sub-contractors); ⑥ finding buyers; ⑦ lower level of infrastructure; ⑧ relevant information; ⑨ high rents; ⑩ other

Q5-2. Generally, what is the most urgent challenges in Myanmar garment industry for its development in future?
()

Q5-3. Do you feel that electricity supply to your factories has been improved in past 2 years? ① Yes ② No

Q5-4. Currently, what concerns, or issues do you have in operating your factories?
: ① Local governments or laws; ② Low level of infrastructure; ③ labor issues; ④ social compliance related to buyers; ⑤ environmental issues; ⑤ financial issues; ⑥ others
: Can you elaborate you answered above? ()

Q5-5. Do you think that you have any problems in communication with local managers?
: ① Yes, I feel difficulty in communication with them.
: ② No, I do not feel any difficulty. We are an amazing team in communication.
; ③ No, I do not feel any difficulty to them, but sometimes I have observed that local managers have difficulty in communication with me.
: if you think you have difficulty in communication with local mangers, what do you think of the main reason? ().

Q5-6. In terms of social compliance, do you think that its criteria vary from buyer to buyer? ① Yes ② No
: if so, generally which country's buyers are more particular about social compliance?
().

Q6. CSR

Q6-1. Have you ever initiated your own CSR programs?
: ① Yes ② No ③ I do not know about CSR
: If so, what kind of activities have you done for CSR?

Q6-2. Are you interested in initiating your own CSR programs in future?
: ① Yes ② No
: if so, what kind of plans do you have? ()

Q6-3. How can you define CSR? What is CSR you think? ()
: ① more like donation (volunteering) to the poor; ② more than donation, like improving social benefits and production environment in the factories; ③ it is related to various well-being of the society including my business partners, neighbouring residents and environments; ④ other ().

Q6-4. If you are planning CSR programs for your employees, what kind of activities you want to do in terms of their needs or capacity building?

: ① education (not for job-related skills); ② financial subsidies (scholarship); ③ improvement working conditions; ④ leisure activities; ⑤ Other

: and can you elaborate the reason you answered above? ()

Q7. Feedback

Q7-1. Do you want to receive outcomes/feedbacks of this survey? ①Yes ②No

Q7-2. Do you mind that if we do further in-depth interviews at your factories? (It will take around one hour) ①Yes
②No

Q8. Regarding SMART Myanmar

Q8-1. Have you ever known (heard) SMART Myanmar? ①Yes ②No

: If so, how do you know SMART Myanmar?

① via MGMA; ② via KOGAM; ③ internet; ④ via seminar (other offline events); ⑤ other

-the end of survey-

Thank you!

We are pleased to hear your thoughtful comments. We hope your business is thriving and to cooperate with you in future. You are interested in SMART's training programs, please find the attached files.

[Interviews]

Interviews with the Korean-owned Garment Factories in Yangon

[NOTE] the questionnaire was originally written in Korean for the survey.

Title	Interview with the Korean-owned garment factories in Yangon
Objective	To understand their business conditions and constraints in operating the factories
Target interviewees	• Korean owners of garment factories (members of KOGAM) in Yangon
Type	Semi-structured & open-ended interview (visit to factories)
Survey Procedure	1) Completion of a questionnaire and confirm by SMART Myanmar: NOV 3rd, 2017. 2) Review and confirm by KOGAM: NOV 3rd, 2017. 3) Scheduling with the 6 factories: NOV 6 – 10th, 2017. 4) Interviews with the factories: NOV 13th, 2017 ~ JAN 16th, 2018. 5) Data documentation and writing a report to SMART Myanmar: February 2018. 6) Sharing results of the interviews with KOGAM: February 2018.

1. INTRODUCTION

This interview is conducted by KOGAM and SMART Myanmar and is connected to previous online survey. The aim of the survey is to understand the current business conditions of the Korean-owned garment factories in Yangon. And we firmly inform that the survey will be kept strictly confidential, your factory or firm's name will not appear in any forms of published article. And results of the survey will be shared with you through KOGAM.

2. QUESTIONNAIRE

Interviewer _____

Date of the interview _____

Name of firm _____

Firm number (anonymous) _____

Name of respondent _____

Function of the respondent _____

PART 1. BUSINESS TREND IN THE SECTOR

Q1) According to the previous online survey, the majority (around 80%) of respondents expected to see the business growth in the sector over next 5 years.

Q2) If so, could you please give us more details why you do expect so?

Q3) or not, could you please give us more details why you don't expect it? Or what do you think the most pressing issue in the local business conditions (e.g. lack of infrastructure or qualified suppliers, regulations, etc.)?

Q4) MGMA has an upgrade plan of the sector moving from current production type (CMP) to more value-added production types (ODM, or OBM). But many people are sceptical about this plan, in the sense, what obstacles should be dealt with for this plan?

PART 2. BUSINESS CONSTRAINTS

Q5) According to the previous survey, we could find the vast gap of the annual revenue between the factories, in this respect, and from your observation to date, what factors are linked to the gap? (e.g. is it because of their business model? Or mismanagement, or the matter of targeting buyers, or lack of infrastructure, or lack of access to information, etc.)

Q6) Could you describe what business constraints your factories currently have?

PART 3. SUPPLY CHAIN AND SOCIAL COMPLIANCE

Q7) Could you describe a flow of the supply chain in which your factory is engaged? Additional actors in supply chain could be educational organization, government institution, private organization, consultant institution, funding body, etc.

Q8) Could you describe details on the processes of social compliance audits by international brand companies, based on your previous experiences?

PART 4. BUSINESS NETWORKS AND KNOWLEDGE SHARING SYSTEMS

Q9) Within supply chain and business networks in which your factory is engaged, how can you obtain relevant information and knowledge to adopt new international standards of social compliance? And we would like to know the flow of knowledge between actors, and could draw the interacting flow of knowledge in supply chain you drew above?

Q10) And except knowledge regarding social compliance, when you are facing issues that you may consider it is difficult for you to deal with yourself, what information sources do you use? And could draw this interacting flow of knowledge in supply chain you drew above?

Q11) From your perspectives, what are the main reason that most owners/managers of Korean-owned factory are particularly rely on the Korean business network in order to obtain or share business information? Is there any reason compared to other foreign and local networks?

Q12) How can you obtain tacit knowledge unlike codified knowledge? For instance, there must be different forms of knowledge that cannot be delivered by books, such as personal experiences and knowhows.

-the end of interview-

Thank you!

Pleased to hear your thoughtful comments, and hope your business is thriving and to cooperate with you in future.

The results of the interview will be shared with you after analysing the data.

[online survey-2]

An online survey on the knowledge sharing networks of the Korean-owned factories in the Myanmar garment sector

[NOTE] the questionnaire was originally written in Korean for the survey.

Title	An online survey on the knowledge sharing networks in the Myanmar garment sector.
Objective	To understand formation of the knowledge sharing networks focusing on the Korean-owned factories in Myanmar.
Target respondents	• Korean owners of garment factories (members of KOGAM) in Yangon
Survey Tool	Online survey (SurveyMonkey)
Survey Procedure	1) Completion of the questionnaire: Jan18th, 2018. 2) Review and confirm by KOGAM: Jan 19th, 2018. 3) Conducting the online survey: Jan 22nd – Feb 11th, 2018 (for 21 days).

1. INTRODUCTION

This online survey is conducted in cooperation with KOGAM with academic purposes. The aim of the survey is to understand the current business conditions of the Korean-owned garment factories in Yangon. We firmly inform that the survey will be kept strictly confidential; and its results will be shared with you through KOGAM. The survey will be only used in preparing better support programs for the garment industry in Myanmar. Thank you for your cooperation. If you have any questions on the survey, feel free to contact: ***** (**)

2. QUESTIONNAIRE

Q1) Within the past 5 years, we are pleased to know which organizations have you been contacted in order to obtain knowledge in regard with factory operations? (Limited in direct contact only)

KOGAM; SMART Myanmar; MGMA; Ji-Pyong (Korean-owned law-firm in Myanmar); ILO;

Other (please write the name of the other organizations):

Q2) Within the past 5 years, we are pleased to know which factories (or firms) have you been contacted in order to obtain knowledge in regard with factory operations? (Limited in direct contact only)

Headquarter in South Korea (if your factory/firm is a subsidiary in Myanmar); Buyers (global brand companies);
 Agents;

[note: There were listed 63 Korean firms, which own factories in Myanmar, on the questionnaire, but their name is not appeared in this question with consideration for the confidential issue];

Other (please write the name of the other factories or firms):

Q3) Which country are the skilled workers/engineers at your firm from?

South Korea; Bangladesh; Indonesia; Vietnam; China; Myanmar;

Other (please write other nationalities of the skilled workers/engineers):

Q4) Could you let us know your preference from 1 (the lowest), to 5 (the highest) by following each method when you obtain the knowledge you need?

	1 (lowest)	2	3	4	5 (highest)
Face to face	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Books/Printed materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Smart) phone/Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Education and training programmes/Seminars (offline)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paid consultancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q5) Which channel do you use to obtain “general business” (e.g. regarding labour laws, minimum wages, etc.)?

Face to face (with organizations, persons, etc.); Books/Printed materials; (Smart) phone/Internet; Education and training programmes/Seminars (offline); Paid consultancy; hiring experts, engineers, and skilled workers; Buyers;

Other (please write other channels if you have):

Q6) Which channel do you use to obtain “knowledge on production”?

Face to face (with organizations, persons, etc.); Books/Printed materials; (Smart) phone/Internet; Education and training programmes/Seminars (offline); Paid consultancy; hiring experts, engineers, and skilled workers; Buyers;

Other (please write other channels if you have):

Q7) Which channel do you use to obtain knowledge on “social compliance”?

Face to face (with organizations, persons, etc.); Books/Printed materials; (Smart) phone/Internet; Education and training programmes/Seminars (offline); Paid consultancy; hiring experts, engineers, and skilled workers; Buyers;

Other (please write other channels if you have):

Q8) What is the main reason your factory/frim has adopted new standards of social compliance or why are you considering in adopting it?

- Because there is a request from buyers (or agents/headquarter); in pursuance of new markets in the US and EU;
 it is more like my personal choice either or managerial belief/strategy such as CSR regardless of buyers;

Other reasons:

Q9) What is your firm's name?

-the end of the survey-

Thank you!

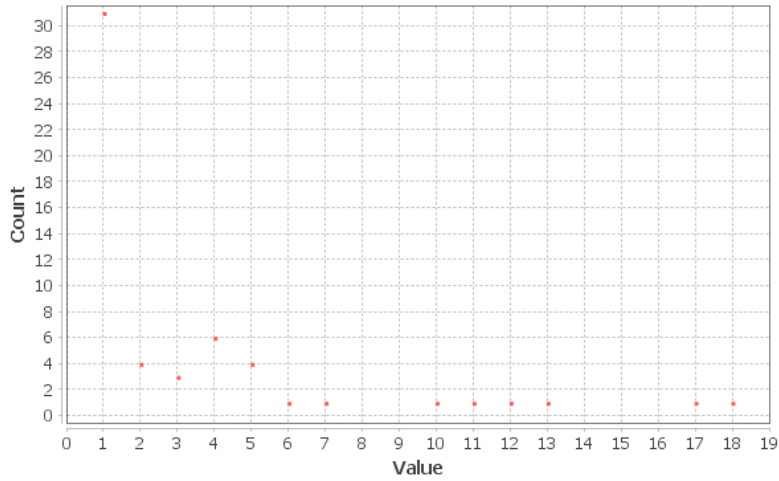
Pleased to hear your thoughtful comments, and hope your business is thriving and to cooperate with you in future.

The results of the survey will be shared with you after analysing the data.

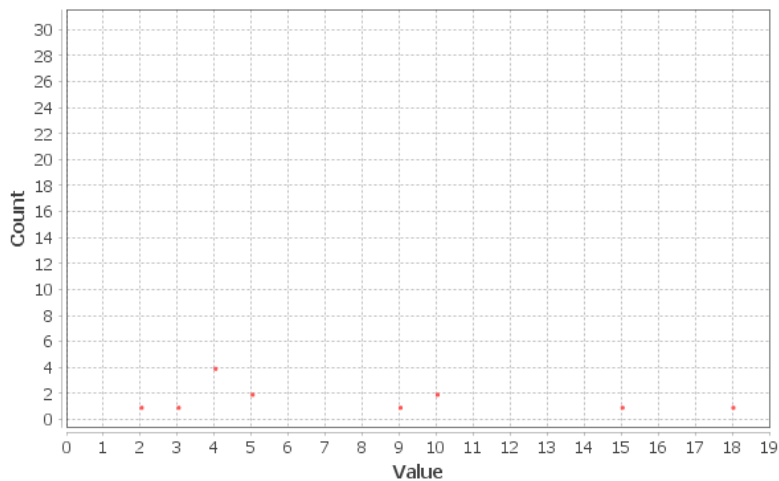
Appendix C: Statistic information of Social Network Analysis

[Degree report: average degree: 1.661] In the graph, 1) “value (X-axis)” means degree that is, number of knowledge shared by actors; 2) “count (Y-axis)” means number of actors. For instance, in the graph of “Degree Distribution”, value 2 is counted meaning that 4 actors shared knowledge 2 times.

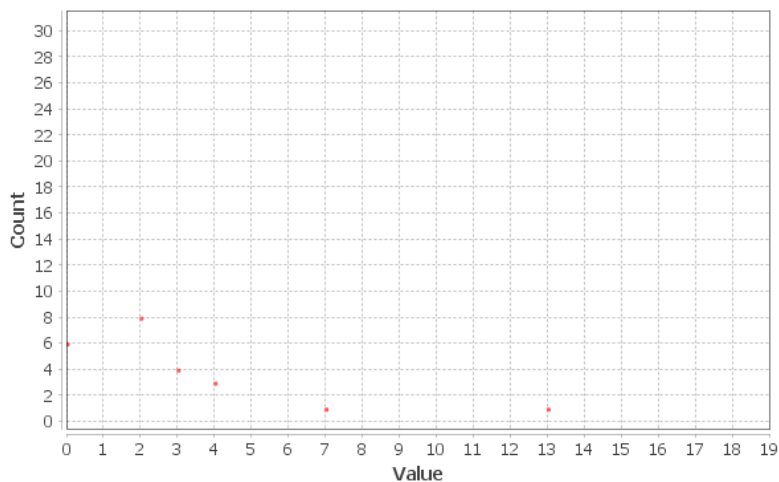
Degree Distribution



In-Degree Distribution



Out-Degree Distribution



Data Table:

Label (actor)	Degree (a+b)	Indegree (a)	Outdegree (b)	Label (actor)	Degree (a+b)	Indegree (a)	Outdegree (b)
AG-1	1	0	1	KF-40	4	0	4
AG-2	1	0	1	KF-42	5	2	3
AG-3	1	0	1	KF-43	2	0	2
AG-4	1	0	1	KF-44	1	0	1
AG-5	1	0	1	KF-49	1	0	1
BU-1	1	0	1	KF-51	11	10	1
BU-2	1	0	1	KF-52	1	0	1
BU-3	1	0	1	KF-55	2	0	2
BU-4	1	0	1	KF-60*	18	18	0
BU-5	1	0	1	KF-62	4	4	0
BU-6	1	0	1	KN-1	5	5	0
BU-7	1	0	1	KN-2	4	4	0
BU-8	1	0	1	OG-1**	13	0	13
HQ-1	1	0	1	OG-2**	7	0	7
HQ-2	1	0	1	OG-3	3	0	3
HQ-3	1	0	1	OG-4	3	0	3
HQ-4	1	0	1	OG-5	4	0	4
HQ-5	1	0	1	OG-6	4	0	4
HQ-6	1	0	1				
HQ-7	1	0	1				
KF-2*	17	15	2				
KF-4	1	0	1				
KF-5	10	9	1				
KF-10	6	4	2				
KF-11	1	0	1				
KF-12	5	3	2				
KF-15	4	4	0				
KF-17	12	10	2				
KF-20	1	0	1				
KF-21	1	0	1				
KF-25	1	0	1				
KF-29	1	0	1				
KF-31	1	0	1				
KF-32	5	5	0				
KF-34	3	0	3				
KF-35	1	0	1				
KF-37	2	0	2				
KF-38	2	0	2				

* the highly frequent receivers of knowledge

** the most influential organisations in knowledge exchange