The effect of distance and other barriers on Intra-Multinational International Collaboration (IMIC)

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Date: 8-12-2014

1 INTRODUCTION

"For many years, multinational corporations could compete successfully by exploiting scale and scope economies or by taking advantage of imperfections in the world's good, labour and market capital. But these ways of competing are no longer profitable as they once were." (Hansen & Nohria, 2004, pp. 22) They now compete on basis of international resources, global coverage and relative parity.

Hansen & Nohria (2004) pleaded in their empirical study of 107 executives of multinational enterprises (MNE's) on the willingness and ability to collaborate, that the focus of MNE's has changed from classical economic advantages of scale to new strategies of collaboration and knowledge sharing. Collaboration between business units of a MNE can have several advantages namely: cost savings, better decision making, increased revenue through sharing of expertise etc. (Hansen & Nohria, 2004). Hansen & Nohria's (2004) article is based on the theory of 'collaborative advantage,' posed by Huxham (1996) and recently renewed by Huxham & Vangen (2013). The theory of collaborative advantage reflects the positive side of collaboration, where people and organizations work together to increase their benefits, instead of the often-negative definition of collaboration used in WWII (Huxham & Vangen, 2013).

Huxham & Vangen (2013) explain in their book about managing collaborative advantage, that it is important to understand collaboration because collaboration is happening, collaboration is valuable and collaboration is difficult. Collaboration is happening, because firms use strategic alliances, joint ventures, public-private partnerships and more to collaborate across regions, and even across borders (Huxham & Vangen, 2013; Huxham, 1996). Collaboration is taken in the wide sense of the word, meaning it comprises of inter-organizational collaboration and intra-organizational collaboration (Huxham & Vangen, 2013). Firms try to collaborate because collaboration can create financial benefits and can increase efficiency. Better coordination of the organization's network and market access are examples of benefits created by collaboration (Huxham & Vangen, 2013; Huxham, 1996). At last, collaboration can be difficult. Difficulties with collaborating are conceptualized by Huxham (1996) and Huxham & Vangen (2013) as 'collaborative inertia'. The term collaborative inertia is used when the apparent rate of work output from collaboration is obstructed considerably compared to what a casual observer expects it to be able to achieve (Huxham, 1996; Huxham & Vangen, 2013).

In 1996, Huxham (1996) notified factors that can affect collaboration namely, differences in aims, procedures, culture and language. Years after Huxham's (1996) study other researchers added important factors as network relations (Tsai, 2001; Argote & Ingram, 2000), information technology (Cairncross, 2001; Ambos & Ambos, 2008; Mithas et al., 2012) and institutional differences (Kostova & Roth, 2002). To address previous factors, the MNE needs a proper organizational network that increases collaboration by making the right links between members of that network and tasks that need to be fulfilled in that network (Argote & Ingram, 2000; Tsai, 2001).

Finding the right person for the right task within a MNE' network often requires searching within the network, covering business units in multiple countries. But Beugelsdijk & Mudambi (2013) point out in their study on MNE's as border-crossing multi-location enterprises, that so called 'discontinuities' (see textbox) can affect collaboration between countries and regions.

> *Discontinuities also referred to as 'spatial discontinuities' or 'distances', is a term in economic geography and international business management that refers to the spatial variation between countries, often characterized by geographic, cultural, institutional and economic factors. These discontinuities have been related to subsets of economics like foreign direct investment (FDI), location decision, exports, entry mode decisions and many more (Beugelsdijk & Mudambi, 2013).*

Hansen & Nohria (2004) point out in their study of creating collaborative advantage, that discontinuities can reduce collaboration when characteristics of management and employees differ between countries. Thereby, cultural distance can hamper knowledge transfer between countries, which can have a negative effect on collaboration (Lucas, 2006). As Beugelsijk & Mudambi (2013) refer to in their definition of discontinuities, the term includes different factors. In most literature these factors are not referred to as discontinuities, but as distance (Ambos & Ambos, 2009; Zaheer & Shonaka, 2012; Lucas, 2006). Because of the previous point, this thesis will use distance as the main referral for terms similar to discontinuities.

Research into collaboration of MNE's and the effect of distance on collaboration has been conducted, but several reasons point out the need for a different approach to these studies. For example, many studies (Minbaeva, 2007; Lucas, 2006; Kostova & Roth, 2002; Easterby-Smith, 2008) focus on only one or two distances that impede collaboration. Some research uses national averages to compare differences in collaboration between subsidiaries of MNE's (Beugelsdijk & Mudambi, 2013; Ambos & Ambos, 2009). Szulanski (1996) pointed out that research focuses on inter-organizational collaboration, while knowledge within the MNE' network is just as valuable, can create competitive advantage (because the knowledge is internal and not accessible to others), but is also prone to barriers. Van Wijk et al. (2008) added in their meta-analytic article about inter- and intra-organizational networks, that intra-organizational networks might even be more susceptible to distances like culture than inter-organizational networks. But still, in those previous studies only culture is taken into account as a primary distance that affects collaboration. Distance may affect collaboration in a basic sense, but studies emphasize the specific importance of intra-organizational collaboration to MNE success. In the end promotion of collaboration *between* business units can have a positive effect for MNE's and if managed properly can create a competitive advantage, because intra-organizational knowledge is managed more easily than inter-organizational collaboration (Szulanski, 1996; Hansen & Nohria, 2004).

Previous paragraphs introduce some advantages that collaboration can have for a firm, but to collaborate with other business units, distance can affect collaboration. As the name implies,

MNE's have business units in more than one country and may need to collaborate internationally. MNE's can be vulnerable to the effect of distance because of cross-border collaboration (international collaboration between business units). And before collaboration can be initiated, business units need to identify expertise, and need to be able to leverage the knowledge that comes with collaboration (Tsai, 2001). To overcome the negative effect of distance and leverage the positive factors that affect the collaboration of business units, research into these distances can be helpful to MNE's.

Because of incomplete coverage of distances in other studies, measurement differences of distances in other research, a difference between inter- and intra-organizational collaboration, a specific effect of cultural distance on intra-organizational collaboration and usefulness of Intra-Multinational International Collaboration (IMIC) research for MNE's, this study has been initiated. The study conducts research at the level of a MNE and tries to create a model that captures the possible effects of multiple discontinuities and barriers on 'intra-multinational international collaboration'. The main research question of this thesis is:

To what extent do distance and other barriers affect intra-multinational international collaboration of ARCADIS, how and why; and how can distance and barriers be overcome?

Intra-multinational international collaboration is defined as the collaboration between employees of business units in one country, with employees of business units in other counties. The business units are all in the same MNE' network and comprise of service offices that execute consultancy work. In this thesis collaboration comprises of sharing knowledge with international colleagues (Yadang, 2005) and project collaboration between international colleagues. The term 'intra-multinational international collaboration' in the text is abbreviated to IMIC. IMIC can be reached through either personal contact or virtual collaboration using information technology (IT) (Ambos & Ambos, 2009; Ardichvili et al., 2006). Results of this thesis are based on data collected at several business units and employees of *the environment department of a global engineering and consultancy firm called ARCADIS.* ARCADIS is located in more than ten countries and covers North- and South America, Europe, Middle East, Australia and Asia.

To answer the main question, six partial questions have been formulated:

Partial questions:

1. *What are the incentives for IMIC, according to the literature?*
2. *Which distances and other barriers can theoretically have a positive or negative effect on IMIC?*
3. *To what extent are business units of ARCADIS collaborating internationally, according to leading managers representing business units of ARCADIS?*
4. *To what extent are employees of ARCADIS collaborating internationally, according to employees of ARCADIS?*
5. *Which distances and barriers are affecting IMIC within ARCADIS according to leading managers representing business units and employees, and how?*
6. *Which solutions for reduced collaboration can influence the effect of distance and barriers on IMIC within ARCADIS according to employees?*
7. *To what extent can IT leverage or reduce the effect distance and barriers on IMIC within ARCADIS?*

1.1 ACADEMIC AND SOCIETAL RELEVANCE

Research about collaboration and distance has focused on different aspects. Sometimes research focuses on collaboration as a whole (Huxham & Vangen, 2013) or on collaboration between different organizations (Easterby-Smith, 2008), but rather often research focuses on knowledge transfer (Ambos & Ambos, 2009; Argote & Ingram, 2000; Szulanski, 1996). Knowledge transfer can be an incentive for, a part of or a result of collaboration (Szulanski, 1996; Casson, 1987), but the term does not include the actual 'working together' of parties which collaboration does include, and therefore a study concerning collaboration might have different outcomes than a study about knowledge transfer. Distance has been measured in empirical studies on cultural distance (Hofstede 1997; Yoo et al., 2012; Wu, 2006) and institutional distance (Chao & Kumar, 2010; Xu & Shenkar, 2002) or literature studies incorporating multiple distances (Ghemawat, 2001; Beugelsdijk & Mudambi, 2013; Lucas, 2006; Zaheer & Shonaka, 2012), but hardly ever has research tried to incorporate cultural, institutional, geographic distances and other barriers in an empirical study about IMIC, and measure the possible effect of distance and barriers on IMIC.

From a societal perspective, this thesis might be interesting for MNE's searching to maximize the use of their internal knowledge or MNE's that have trouble identifying and leveraging the knowledge already present in the company (Argote & Ingram, 2000; Tsai, 2001). This thesis emphasizes the sometimes hampering international collaboration of MNE's and empirically explores the distances and barriers that might exist within a MNE' network. Once MNE's can locate these distances and barriers, they will be able to either leverage or reduce the effect caused by the discontinuities and barriers, to increase the collaborative efficiency of the MNE (Hansen & Nohria, 2004; Ambos & Ambos, 2009; Szulanski, 1996).

For this research the environment department of ARCADIS is researched due to access to resources within the environment department and cooperation of this department. The empirical research consists of two parts. Firstly, surveys are spread among leading managers of 12 countries, to map out the international collaboration with other ARCADIS business units. International business units consist of previous mergers and acquisitions (M&A's) and already existing ARCADIS business units. Secondly, an employee survey measures different distances between

The thesis has the following structure. Section 2 comprises a theoretical framework describing how IMIC originates and explains how and why factors are affecting IMIC. Section 3 describes the methodology used to research IMIC and how to map out distances within the MNE' network. Section 4 consists of empirical results of the effect of distance and barriers to IMIC, testing the hypotheses derived from the theoretical framework, using data collected through surveys. Concluding remarks are made in Section 5 concerning the effect distance and barriers have on IMIC, and policy recommendations are given to ARCADIS.

2 THEORETICAL FRAMEWORK

2.1 PREVIOUS RESEARCH CONCERNING COLLABORATION

The introduction pointed out that collaboration can be obstructed by distance and that this can impede the goal of having a collaborative advantage over other MNE's (Beugelsdijk & Mudambi, 2013; Huxham & Vangen, 2013). Nowadays this theory is more widely accepted, but thinking about MNE strategy and collaboration advantages started earlier. Therefore this thesis first wants to answer the following partial questions:

"What are the incentives for IMIC, according to the literature?" and
"Which distances and other barriers can theoretically have a positive or negative effect on IMIC?"

Years ago researchers were already aware of the idea of distance and barriers between business units of an organization. In 1976 Buckley & Casson pointed out in their book about the theory of the MNE, that the transfer of information is not costless. 'In order to successfully transfer information between business units, personnel responsible for encoding and decoding must have similar backgrounds or operate in a similar environment, otherwise misunderstandings will arise because the implicit assumptions of the decoder will differ from those of the encoder' (Buckley & Casson 1976 in Kogut & Zander, 1993 p. 629). Additional costs will also be made because of economic, social and linguistic dissimilarities between regions (Buckley & Casson, 1976). In 1987 Casson expanded the theory of Buckley and Casson (1976) about the MNE in a general theory of the behaviour of a MNE in space.

Buckley & Casson (1976) where one of the first to point out the implications that arise when firms in different countries try to exchange knowledge. Knowledge is described as know-how, which is divided in know-what, know-who and being-known (Casson, 1987). Casson (1987) pointed out that factual knowledge could help with successful problem solving, while knowing who can supply missing information and identifying who is willing to trade information can create partnerships. Casson's (1987) statement on know-how and becoming trading partners, pointed out that knowledge could be an incentive for inter-organizational collaboration.

Years later, Szulanski (1996) wrote in his empirical study about stickiness of knowledge, that organizations often try to exchange best-practices within their own network. Best-practices according to Szulanski (1996) are 'the firm's replication of an internal practice that is performed in a superior way in some part of the organization and is deemed superior to internal alternate practices and known alternatives outside the company' (p. 28). These best practices are often transferred through the individual or partly in collaborative social arrangements (Szulanski, 1996). In Szulanski's (1996) article collaboration is happening together with knowledge transfer. Szulanski (1996) does see impediments for the transfer of knowledge, pointing out that absorptive capacity; culture and the 'tacitness' of knowledge can cause problems for the transfer of knowledge. Tacitness refers to how hard it is to articulate

and codify a domain of knowledge (e.g. send knowledge) (Polanyi, 1967), while absorptive capacity refers to the ability to assimilate and apply new knowledge successfully (e.g. receiving knowledge) (Szulanski, 1996). Absorptive capacity is often connected to the previous knowledge of a firm (Szulanski, 1996). Although Buckley & Casson (1976) were pioneers in identifying barriers in the exchange of knowledge, Szulanski (1996) is often the first cited source of researchers who identify discontinuities in collaboration and knowledge transfer.

Research concerning distance consists of topics that elaborate both on knowledge transfer and collaboration, and the two are often combined as Szulanski (1996) also pointed out in previous paragraphs. Casson (1987) showed that knowledge can be an incentive to collaboration, but other researchers also use knowledge and collaboration together as shown by the following referrals. Inkpen & Pien (2006) pointed out in their case study about inter-organizational collaboration and knowledge transfer between a Chinese and Singaporean company, that an alliance is the ideal platform for learning. Differences in knowledge can cause strategic complementarity and can be leveraged through collaboration (Inkpen & Pien, 2006). Santoro et al. (2006) describe in their study about intra-organizational collaboration and knowledge sharing in network organizations, that the amount of knowledge in a network organization should be leveraged through the social and technological collaboration of the geographically distributed networks. Collaboration and knowledge sharing can be subject to hinder, because of differences in background and distances between the people that interact with each other, and this needs to be overcome to increase performance (Santoro et al., 2006). At last, Muscio (2006) points out in his research about the impact of absorptive capacity on inter-organizational collaboration, that to acquire knowledge that is dispersed among different business units, collaboration can be the key to obtain the different kinds of knowledge. Summarizing, collaboration is bridging different kinds of knowledge and people between different business units.

As previous referrals point out, knowledge transfer, knowledge sharing, knowledge exchange and collaboration are often used in combination with each other or are sometimes even used interchangeably. This thesis therefore uses literature concerning knowledge transfer and collaboration to fund IMIC and factors that affect IMIC. All previously named terms will be used in citations, but in this thesis will all address possible factors that affect collaboration. But to address the factors that affect IMIC, this thesis first has to explore incentives for IMIC, to see if incentives that make IMIC happen are affected by distance and barriers.

2.2 INCENTIVES FOR IMIC

According to the literature, proximities can stimulate collaboration. (Boschma, 2005; Knoben & Oerlemans, 2006). Proximities refer to factors that, once in the vicinity of an organisation, can influence collaboration. Knoben & Oerlemans (2006) and Boschma (2005) pointed out in their literature review about intra- and inter-organizational collaboration and proximity, that different types of proximity can influence collaboration positively. Figure 1 shows the outline of the different proximities. The next paragraph briefly explains the different proximities in the figure presented below.

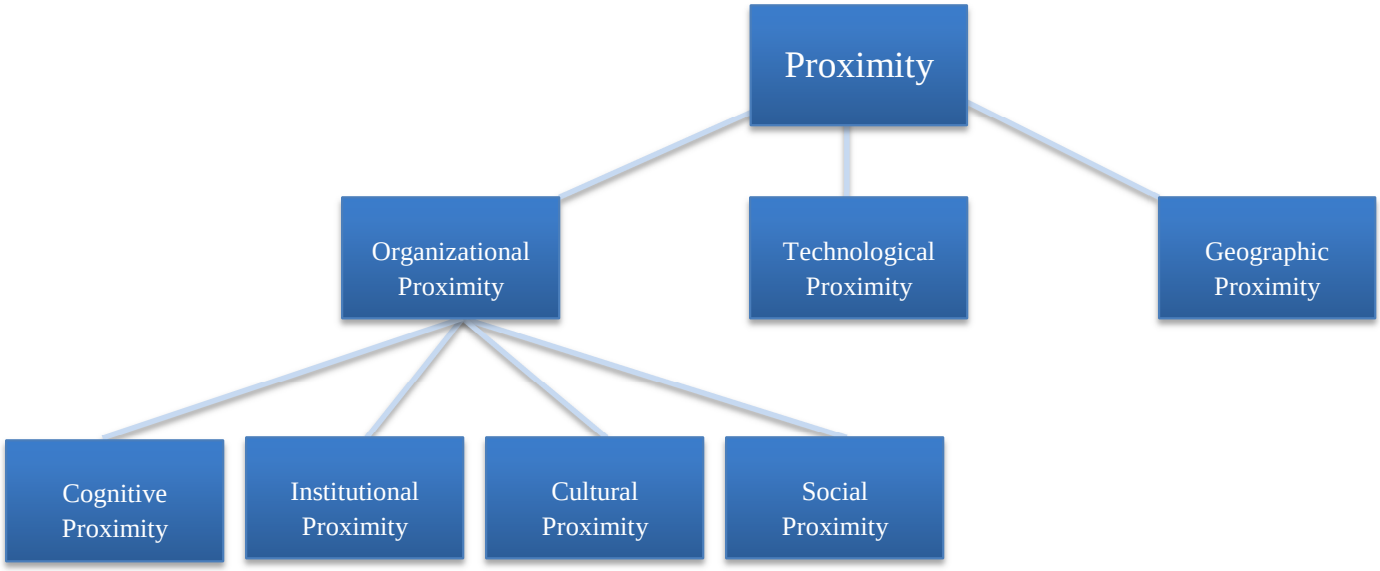

Figure 1 Proximities that affect Inter-organizational collaboration (based on Knoben & Oerlemans, 2006)

According to Boschma (2005) and Knoben & Oerlemans (2006) cognitive distance stands for the way that people acquire and interpret knowledge within an organization. The way that people interpret and acquire knowledge differs between organizations within the same country or between organizations that are dispersed across different countries. Boschma (2005) explains that these differences in skills and knowledge are more easily overcome when the sort of knowledge of one organization and the sort of routine within an organization is closer related to that of another organization. Knoben & Oerlemans (2006) say that similarities in knowledge (e.g. specialized in similar practices) can increase inter-organizational collaboration. Multinational enterprises can have a lot of different business units and these business units can be almost separate organizations with separate specialized knowledge. Once these business units are specialized in similar practices, they can start collaborating to increase those practices.

Institutional proximity is another factor that could increase collaboration. Boschma (2005) and Knoben & Oerlemans (2006) both describe institutional proximity as a proximity that consists of two parts. The first part has comprises of norms and values of a country, region or

organization. Examples are taboos, customs, traditions etc. (Knoben & Oerlemans, 2006). The second one comprises of formal institutions like laws and regulations either present in nations or organizations. Both Boschma (2005) and Knoben & Oerlemans (2006) point out that institutional proximity has a lot of factors that are ambiguous with organizational proximity and point out that especially rules and regulations can differ among nations, but that these rules and regulations can differ again within organizations.

Again, cultural proximity is another factor that can increase collaboration once similar (Knoben & Oerlemans, 2006). Similarities in cultural traits can increase the ease that people interact with each other and start collaborating. Both Boschma (2005) and Knoben & Oerlemans (2006) show that cultural proximity has lots of similarities with the norms and value aspect of institutional proximity. Therefore institutional proximity and cultural proximity are to some extent ambiguous.
According to Boschma (2005) and Knoben & Oerlemans (2006) social proximity has to do with the amount of social interaction and social relations between different organizations, as well as the strength of these relations and interactions. Close relations and a high level of interaction can increase interactive learning and increase collaboration (Boschma, 2005; Knoben & Oerlemans, 2006). Although social proximity is sometimes used as a separate proximity, it has similarities with cognitive proximity (similarities in knowledge and practices increase social interaction) and cultural proximity (similarities in norms and values strengthen social relations) and therefore is to some extent ambiguous with these proximities.

Another proximity, technological proximity, is seen as a separate factor by Knoben & Oerlemans (2006). Technological proximity, according to Knoben & Oerlemans (2006), has to do with the differences in knowledge between organizations. Because of the difference between the sorts of knowledge of organizations, they have less absorptive capacity to the knowledge of the other organization. Lower absorptive capacity means that differences in prior knowledge can make it harder to collaborate on certain subjects. On the one hand Knoben & Oerlemans (2006) say that technological proximity is different than cognitive proximity, since cognitive proximity has to do with different routines within organizations and different interpretations of factors by employees. On the other hand Boschma (2005) implements technological proximity into cognitive proximity, saying different routines create different knowledge and practices and therefore absorptive capacity decreases once organizations differ in routines and knowledge. If Boschma (2005) is believed, the technological proximity described by Knoben & Oerlemans (2006) is ambiguous with cognitive proximity.

Finally, geographic proximity has no ambiguity with any other proximity, since it is based on the physical distance between organizations, nations or regions that supposedly would influence interactive learning and collaboration (Boschma, 2005; Knoben & Oerlemans, 2006).

Comparing these proximities to other literature shows that Knoben & Oerlemans (2006) write about proximities, while other studies often address distances (Xu & Shenkar, 2002; Ambos

& Ambos, 2008; Zaheer & Shomaker, 2012). Examples in literature are that a smaller geographic distance would increase collaboration between different parties, because of the ease of communication and similar times zones (Beugelsdijk & Mudambi, 2013; Sjöholm 1996). Smaller cultural distance can stimulate collaboration, due to understanding each other's needs and having similar contexts (Lucas, 2006; Knoben & Oerlemans 2006; Bhagat et al., 2002). While the same cultural traits can increase the chances for collaboration, institutional similarities (e.g. same rules and regulations) can reduce the effort needed to collaborate with each other in different countries (Chao & Kumar, 2012; Kostova & Roth, 2002). Boschma (2005) and Knoben & Oerlemans (2006) emphasize in their literature review of proximity and collaboration that institutional proximity increases collaboration because of similar procedures and similar rules that ease collaboration within spaces confined by those rules.

Other factors can either positively or negatively affect inter- and intra-organizational collaboration. More diverse business units with a larger absorptive capacity could increase successful collaboration between employees of those business units (Szulanski, 1996; Minbaeva, 2007; Knoben & Oerlemans, 2006). If employees of business units are willing to ask for help and motivated to help, collaboration between business units increases (Hansen & Nohria, 2004; Minbaeva, 2007). If employees embrace information technology to bridge distance, collaboration could increase (Ambos & Ambos, 2008; Kim & Kankanhalli, 2009). And at last, if employees of a MNE interact socially with other employees of other business units (e.g. visits, training involving multiple international teams and international committees), knowledge gets more easily shared and collaboration is stimulated (Noorderhaven & Harzing, 2009).

Summarizing, smaller geographic distance, smaller cultural distance and smaller institutional distance, larger absorptive capacity, increased technological adaptation and positive willingness and motivation and increased social interaction are most often put forward as incentives for creating collaboration. In the next paragraphs, distance and other factors that are used in this thesis are explained in more detail, and their possible effect on IMIC is highlighted.

2.3 DISTANCE AT THE BUSINESS UNIT LEVEL

The next three sections discuss the effect of the three distances, geographic, cultural and institutional distance on Intra-multinational International Collaboration (IMIC). In this research all of the upcoming distances are based on business unit (BU) scale (physical distance between countries where business units are located, cultural distance between Business units and institutional distance of countries where Business units work in) and could have either a positive or a negative effect on IMIC.

2.3.1 GEOGRAPHIC DISTANCE

Geographic distance usually gets measured by taking the crude distance of a country's capital city or geographic middle respectively to the other countries (Beugelsdijk & Mudambi, 2013). Large geographic distance can affect the flow of information between countries, and therefore affect IMIC negatively. Storper & Venables (2004) point out in their literature study of face-to-face contact and the urban economy, that spatial proximity or small geographic distance improves information flows by recombining knowledge and transferring best practices. Storper & Venable's (2004) article mainly describes examples of inter-organizational knowledge sharing, but these examples also apply to intra-organizational collaboration. The reason for easy knowledge sharing comes with the difference between codified and tacit knowledge. Whereas codified knowledge can be transferred by written means, tacit knowledge is transferred through experience and face-to-face communication (Storper & Venables, 2004). Because of the need for face-to-face communication, smaller geographic distance can increase collaboration, because more tacit knowledge can be shared.

Another explanation of the effect of geographic distance on collaboration comes from Ghemawat (2001), who points out that 'geographic distance, for instance, affects the costs of transportation and communications, so it is of particular importance to companies that deal with heavy or bulky products, or *whose operations require a high degree of coordination* among highly dispersed people or activities' (p. 3). For ARCADIS this would mean that coordinating their employees across the globe could become troublesome, and IMIC would hamper across distant countries (Ghemawat, 2001). Coordinating would become especially difficult because of the differences in time zones and the complexity of identifying knowledge that increases with geographic distance (Daft and Lengel, 1986; Cyert and March, 1992).

Collaboration between business units can be accomplished through the use of information technology (technological communication methods) and face-to-face contact (personal communication methods). Geographic distance can have a different influence on both mechanisms (Ambos & Ambos, 2009). The study of Ambos & Ambos (2009) about communication mechanisms and distance, shows that geographic distance has a significant negative effect on knowledge transfer via personal communication methods between business units, but have hardly any effect on knowledge transfer via information technology. According to Ambos & Ambos (2009) information technology can be accessed almost 24 hours a day. Geographic distance is an important factor in collaboration and Dastidar &

Zaheer (2009) even think it is has the biggest impact on collaboration, because of the difficulty to have personal contact.

2.3.2 CULTURAL DISTANCE

'Cultural distance' is often seen as an inhibitor of complications for knowledge transfer and collaboration (Easterby-Smith, 2008; Ambos & Ambos, 2008; Lucas, 2006; Möller & Svahn, 2004). In this thesis cultural distance is defined as the degree to which cultural norms in one country are different from those in another country (Kogut & Singh, 1988). Cultural distance is based on the concept of cultural dimensions created by Geert Hofstede in 1980 (Hofstede, 2001), since this is one of the most often cited methods when researching cultural differences between actors. Hofstede's (2001) national cultural dimensions consist of five different concepts: power distance, individualism/collectivism, masculinity/femininity, uncertainty avoidance and long-term orientation. Lucas (2006) created a conceptual framework for the first four cultural dimensions, connecting the dimensions to the process of knowledge transfer. Lucas (2006) didn't explain why he didn't use long-term orientation as a factor for knowledge transfer. Long-term orientation is the degree to which employees value long-term goals and a pragmatic approach versus a short-term, more normative approach (Wursten et al, 2014). Long-term orientation hasn't been connected to collaboration in previous studies and is seen as an extra cultural dimension, by Geert Hofstede itself (Hofstede, 1991). Yoo et al. (2011) and Wu (2006) both analysed cultural distance on the MNE level, and only used the first four dimensions of Hofstede's cultural dimensions. The table below defines the main cultural dimensions that are studied.

Cultural Dimension	Definition
Power Distance (PD)	Power Distance (PD) is based on the inequality people perceive. The inequality fosters a notion of dependence that may be large or small.
Individualism/Collectivism (IC)	Individualism/Collectivism (IC) is the degree of self-interest of people. It reflects the concerns of individual and group interests within a workgroup.
Masculinity/Femininity (MF)	Masculinity/Femininity is the willingness to promote societal values. In masculine societies, results and rewards are priority, while feminine priorities tend to prioritize compromises and negotiation.
Uncertainty Avoidance (UA)	Uncertainty Avoidance (UA) is the reluctance to deal with ambiguity and is directly related to the willingness to embrace change.

Table 2-1 Cultural dimensions defined (Hofstede 1997; Hofstede 2001; Lucas 2006)

The cultural dimensions affect collaboration in different ways. A literature review of Easterby-Smith (2008) about intra- and inter-organizational collaboration, pointed out that differences in culture affect intra-organizational knowledge transfer negatively. According to Lucas (2006) PD, IC, MF and UA all have their specific influence on knowledge transfer,

either positive or negative. Van Wijk et al. (2008) even think that culture has more influence on intra-organizational collaboration than on inter-organizational collaboration. The reason for the additional effect of culture on intra-organizational collaboration could be sought in the authority differences that exist within a MNE (Williams, 2007). The authority difference can create a bigger power distance, but this will be discussed in more detail in the next paragraph. The next paragraphs elaborate on the different cultural dimensions and their effect on collaboration.

POWER DISTANCE (PD)

Power distance can either stimulate or inhibit collaboration (Ardichvili et al., 2006; Möller & Svahn, 2004). Cultures with a small PD for example, have a more participative approach and this approach allows free exchange of ideas (Lucas, 2006), whilst cultures with a large PD see their subordinates as acquirers of knowledge instead of creators. This will either lead to total acceptance of knowledge sharing or total resistance (Lucas, 2006). Möller & Svahn (2004) add in their study about knowledge sharing and intercultural business networks, that large PD increases communication and knowledge sharing within the business unit, while small PD increases the cross-organizational communication and knowledge sharing between business units. Collaboration between cultures with different power distances has different effects. Lucas (2006) and Möller & Svahn (2004) pointed out that business units who both have a large PD often engage in knowledge sharing, because the business units will make compromises, which will (if done correct) benefit both business units. Engagement of large PD business units in knowledge transfer with small PD business units often happens (Lucas, 2006), unless a small PD business unit has nothing beneficial to offer to a large PD business unit (Ardichvili et al., 2006). Hierarchical ties have an important role in the collaborative approach of business units. Large PD business units often think that they can do what they want, because they already have a good position within the intra-organizational network (Lucas, 2006; Möllers & Svahn, 2004).

INDIVIDUALISM/COLLECTIVISM (IC)

In individualistic cultures, people are usually driven by self-interest (Lucas, 2006). In individualistic cultures people will only engage in knowledge transfer when they can benefit from the exchange (Lucas, 2006). Collectivistic cultures on the other hand, are driven by the notion that group inclusion in knowledge transfer is more important and that knowledge is a property of the MNE (Lucas, 2006). Möller & Svahn (2004) have a different viewpoint, saying that collectivistic cultures rather stay within organizational boundaries and within a smaller group of people, while individualistic cultures have no problems with crossing organizational boundaries and communicating with anyone in the organization. Individualists therefore exchange knowledge with anyone that might be useful to them. Another explanation for the collaboration of collectivistic and individualistic cultures can be found in the following contrast. On the one hand, Ardichvili et al., (2006) add in their empirical study about cultural influences on virtual collaboration (collaboration through the use of IT), that individualistic cultures more often engage in virtual collaboration because they interpret the context more freely. Because of the free interpretation, individuals are more likely to accept written and codified knowledge. On the other hand collectivistic cultures need an actual face-to-face

explanation, which can be related to the environment and is supported by other people in their community (Bhagat et al., 2002). The effect of IC could positively and negatively affect IMIC, and differs between personal and virtual collaboration.

MASCULINITY/FEMINITIY (MF)

Although not many articles about collaboration and culture point out a significant impact of MF on collaboration, Lucas (2006) argues that masculine cultures are probably less inclined to collaborate than feminine cultures. Rather like masculine cultures, that have a 'winner takes all perspective'; feminine cultures promote cooperation (Lucas, 2006). Self-interest is, similar to the aspect of individualism, an incentive for collaboration in masculine cultures. If an overly masculine business unit sees a possible advantage in collaborating with another business unit, then the business unit will engage in collaboration (Phene et al., 2005). Feminine cultures are already open to collaboration and will try to search for possible compromises between two parties (Phene et al., 2005 and Lucas, 2006).

UNCERTAINTY AVOIDANCE (UA)

Business units with weak UA are usually anxious to work in new, challenging working environments, either technological or physical (Zakaria et al., 2004). This could decrease virtual and physical collaboration with a business unit that has high UA and that therefore disregards new and challenging environments. Lucas (2006) has a similar argument saying that business units with a high UA will avoid making changes and will be less aggressive in their search for new ways of doing things. Lucas (2006) compares the high UA business units with weak UA business units, who welcome change. Weak UA business units are tied to the thought that there must be a better way of doing things (Lucas, 2006). Weak UA business units searching for new ways to do things, can lead to business units that have best-practices to offer, and therefore might incentivize collaboration (Szulanski, 1996; Lucas, 2006).

LANGUAGE

Besides the basic cultural dimensions of Hofstede, researchers often address language as a barrier (when different) or a facilitator (when similar) of collaboration and knowledge transfer (Ambos & Ambos, 2009; Zaheer et al., 2012). The only source found that contradicts this argument is made by Schomaker in Zaheer et al. (2012). In Zaheer et al. (2012), Schomaker points out that closely related language could be a barrier to collaboration and knowledge transfer, because people expect similar cultural traits when they speak the same language. Expecting similar cultural traits, because of a similar language could lead to underestimating the ease of collaboration. Lucas (2006) showed that, although Canada and the United States both speak English, they have different cultural traits and collaboration still hampers between the two. According to the literature (Zaheer et al., 2012; Ambos & Ambos, 2009; Lucas, 2006) language can have positive and negative effects on IMIC and is an interesting factor to study in this thesis. In this study, the effect of language on IMIC is included under the subject cultural distance.

2.3.3 INSTITUTIONAL DISTANCE

According to the empirical study of Kostova & Roth (2002) about organizational structure and institutional effects of a MNE located in ten countries, institutional distance comprises of regulatory, cognitive and normative components. The regulatory component consists of particular laws and rules that have their effect on the behaviour of people in a region. The cognitive component consists of shared knowledge and other cognitive categories like stereotypes, and the normative component comprises norms and values of a country/region (Kostova & Roth, 2002). North (1991) phrases it differently saying that institutions create formal and informal constraints, whereas formal constraints consist of laws, constitutions and property rights, while informal constraints are more normative (North, 1991). In a study about institutional distance and international firm performance, Chao & Kumar (2012) put emphasis on the effect of the regulatory (formal) component of institutional distance, since the cognitive (informal) component is ambiguous with factors of cultural distance (Chao & Kumar, 2012). Since the norms and values component of institutional distance overlaps with cultural distance (Knoben & Oerlemans, 2006), this thesis limits itself to the regulatory (formal) component of institutional distance.

Formal institutions can be ranked in several ways, including through property rights and contract enforcement statistics (Frances, 2004). According to Frances (2004) in her literature review on the effect of institutions on firms and economic growth, formal institutions shape the environment in which firms operate. These formal institutions have an influence on human capital of firm's employees and the exchange of knowledge across firms. Exchanges between two parties can be costly and if these exchanges are not supported by any law, transactions can be a risk and costly (North, 1994). Therefore to reduce firm's uncertainty in knowledge and economic transactions (e.g. project collaboration), strict property rights and low contract enforcement help in that process (Frances, 2004; Rodrik, 2003).

According to Szulanski (1996) best practices within knowledge transfer are an incentive for collaboration, but if knowledge can't be implemented in different countries because of institutional distance, this might impede collaboration efforts (Chao & Kumar, 2012). Kostova & Roth (2002) add that maintaining an equal quality of work in all environments is important for MNE's, and adopting local practices is needed to implement the same set of skills in different regions. To implement the same set of skills in every region the MNE will attempt to leverage practices on a global basis and use the worldwide network of business units to gain global integration at one hand, while stimulating local adaptation on the other (Kostova & Roth, 2002). Collaboration seems a good way of achieving the goals of global integration and local adaptation, but differences in institutional distance could decrease that effort. Zaheer (2012) points out that institutions like UNCTAD[1], Transparency International and the World Bank Group offer insight into institutional characteristics of countries, hence firms can use that knowledge to improve practices.

[1] United Nations Conference on Trade and Development (www.unctad.org)

Boschma (2005) and Knoben & Oerlemans (2006) mention that institutional distance can occur between countries, but also between organizational units. Institutions within countries can either positively or negatively affect collaboration, but differences in institutions within the organization can also influence collaboration in a positive or a negative way (Boschma, 2005; Knoben & Oerlemans, 2006). For example bad financial and economic arrangements between business units of a MNE could impede collaboration when transactions between different business units become too cumbersome and expensive (Boschma, 2005; Knoben & Oerlemans, 2006). An example of national institutions that effect collaboration could be regulations regarding foreign workers. If MNE aren't able to send employees across borders because of regulations, social interaction and collaboration could be hampered (Kostova & Roth, 2002). Organizational and national institutions thus can both affect collaboration negatively.

2.4 OTHER BARRIERS TO IMIC (BUSINESS UNIT LEVEL)

The previously discussed discontinuities are often country/region specific (Beugelsdijk & Mudambi, 2013). This section identifies two other barriers that might hinder IMIC namely, specialization and business unit age. Both barriers are on business unit level.

2.4.1 SPECIALIZATION (ABSORPTIVE CAPACITY)

Business units that are too specialized in a specific practice can have a negative effect on international collaboration due to the lack of absorptive capacity of other business units (Szulanski, 1996; Minbaeva 2007; Chang et al. 2012). Absorptive capacity, defined as 'the firm's level of prior related knowledge' (p. 128) by Cohen & Levinthal (1990) in their empirical study on absorptive capacity of an American manufacturing sector, can reduce the efficiency of knowledge transfer or even inhibit knowledge transfer, if one of the parties is not able to absorb the knowledge that is transferred to them (Szulanski 1996; Chang et al. 2012). As noted earlier by Szulanski (1996) an incentive for collaboration is the existence of a best practice in another part of the MNE. The best practice knowledge can be tacit of nature and require social interaction and thus collaboration among people to transfer (Szulanski, 1996), but if the receiving party is not in the position of leveraging the knowledge, collaboration is not feasible (Minbaeva 2007; Szulanski, 1996). Several studies argue that large absorptive capacity has a positive effect on knowledge transfer (Minbaeva 2007; Szulanski, 1996; Easterby-Smith, 2008). Minbaeva (2007) also points out that there is a cognitive aspect of absorptive capacity, namely willingness and motivation. Since this is on the individual level, willingness and motivation will be covered in the designated section 2.4.

Minbaeva (2007) pointed out in her empirical study about knowledge transfer between 169 subsidiaries of an international company, that absorptive capacity is often measured in R&D expenditures as a percentage of total sales as executed by Cohen & Levinthal (1990) (Szulanski, 1996; Tsai, 2001; Muscio, 2007). But not all firms have R&D expenditures. Chang et al. (2012) in their empirical study about expatriate knowledge transfer and subsidiary absorptive capacity of 162 subsidiaries, use a measure more applicable to all kinds

of firms, by interviewing leading managers about their perception of employees capabilities of absorbing knowledge within their business unit.

2.4.2 BUSINESS UNIT AGE

A final factor mentioned in literature at the business unit level is 'business unit age'. Business unit age is defined as the time that the business unit is already part of the MNE' network. The internal network of a MNE can be expanded by a setting up a new plant, merge with- or acquire a company (Bauer & Matzler, 2014). Bauer & Matzler (2014) point out in their empirical study about mergers and acquisitions (M&A) success that strategic complementarity, cultural fit and degree of integration can have an effect on the success an M&A has within a MNE. The effect can be caused by the differences in organizational culture, which consists of directives, administration and other operational processes (Chatterjee et al., 1991) and these differences between M&A's and the MNE can cause collaboration to hamper. Proper preparation of newly acquired subsidiaries can overcome the effect of differences in organizational culture, but often it takes a few years for a subsidiary to completely integrate into a MNE network. Business units that are set up by employees of the MNE often already have a better connection to the internal network (Bauer & Matzler, 2014) and therefore can have a positive impact on collaboration. Previous paragraphs show that differences in organizational culture of newly acquired business units can possibly affect IMIC negatively (once recently acquired) and therefore business unit age is taken into account in this thesis.

2.5 EFFECTS OF EMPLOYEES ON IMIC AT THE INDIVIDUAL LEVEL

Employee behaviour might have an effect on IMIC. Certain factors like willingness and motivation, technological adaptation and social interaction could have an impact on IMIC (Hansen & Nohria, 2004; Kim & Kankanhalli, 2009; Noorderhaven & Harzing, 2009). The following paragraphs discuss the three previous stated factors.

2.5.1 WILLINGNESS AND MOTIVATION

As previously mentioned in the section about absorptive capacity at the business unit level, willingness and motivation (at the individual level) to send or receive knowledge can impede knowledge transfer (Minbaeva 2007). Hansen & Nohria (2004) linked willingness to transfer knowledge of employees directly to a lack of collaboration, when discovering employees that were not willing to either help or seek help or were motivated to help, but were not able to help out, because of a lack of collaborative opportunities and tools. Minbaeva (2007) made a list consisting of possible reasons why employees would withhold knowledge from other colleagues in (other) business units and thus weren't motivated or willing to share that knowledge (Table 2-2).

Reasons to withhold knowledge from other colleagues
Potential loss of value, bargaining power, and protection of individual competitive advantage due to a strong feeling of personal ownership of the accumulated, “hard won” knowledge.
Reluctance to spend time on knowledge sharing. Knowledge senders may not be interested in knowledge sharing since the time and resources spent on it could be invested in activities that are more productive for the individual.
Fear of hosting “knowledge parasites”. Knowledge senders may be reluctant to share their knowledge with someone who has invested little or no effort in his/her own knowledge development.
Avoidance of exposure. By not sharing knowledge, individuals protect themselves from external assessments of the quality of their knowledge.
Strategy against uncertainty. Due to the uncertainty of the knowledge receiver’s perception and interpretation of shared knowledge, knowledge senders may be highly cautious about revealing the relevant knowledge.
High respect for hierarchy and formal power. Knowledge senders may be reluctant to share crucial knowledge for fear of losing a position of privilege and superiority.

Table 2-2 Reasons for withholding knowledge (Husted & Michailova, 2002 pp. 65-67; Minbaeva & Michailova, 2004 pp. 668; Minbaeva 2007 pp. 577-578)

The reason to withhold knowledge from other people within the MNE impedes knowledge transfer between different business units (Husted & Michailova, 2002; Minbaeva, 2007). This thesis shows whether similar reasons apply to IMIC, and points out if willingness and motivation to collaborate internationally differs between the employees of different business units of the MNE.

2.5.2 USER RESISTANCE OF TECHNOLOGY

Scholars say IT has reduced the difficulty of communication over distance (Mithas et al. 2012; Ambos & Ambos, 2009). Cairncross (2001) even pleaded in his study about distance and IT that the ‘death of distance’ would occur, meaning distance would no longer be a significant barrier to communication and knowledge transfer. Ambos & Ambos (2009) point out that firms, who effectively use IT infrastructure, have increased performance compared to firms that do not use IT infrastructure in the right way, and IT does decrease the effect of distance as recalled by Cairncross (2001). Although using IT can increase performance and coordination (Mithas et al. 2012), Tanriverdi (2005) points out in his study about IT and knowledge management, that IT can be a significant help in knowledge management and coordination, but shouldn’t be seen as the sole solution to problems in knowledge management and coordination. Collaboration by sharing knowledge can be done by sharing codified knowledge with colleagues, but once knowledge is tacit of nature, IT won’t be of help, since tacit knowledge needs to be transferred by face-to-face contact and experiences people (Storper & Venables, 2004; Polanyi, 1967).

Apart from the beneficial effects of IT on distance, codified knowledge transfer and coordination, employees can in turn have negative effect on the possible benefits of IT (Kim

& Kankanhalli, 2009; Ambos & Ambos, 2009). Kim & Kankanhalli (2009) point out in their empirical study of user resistance on information system implementation among employees of a global IT service company that users of IT can either accept or resist technology. Resisting the use of a specific technology is also called 'user resistance' (Kim & Kankanhalli, 2009). User resistance usually happens when employees either find the technology not useful or the technology difficult to use (Kim & Kankanhalli, 2009). If for some reason business units within countries have a high level of user resistance to technology, virtual collaboration between countries decreases (Ardichvili et al., 2006). The decrease in virtual collaboration will have a diminishing effect on IMIC.

2.5.3 SOCIAL INTERACTION

As Breschi & Lissoni (2003) argue in their empirical study about mobility and social networks, social interaction in the form of meeting each other can increase the exchange of knowledge and best practices between employees. Noorderhaven & Harzing (2009) reflect the effect of social interaction on intra-organizational knowledge sharing and come to the conclusion that social interaction between employees positively influences interaction between business units. Stimulating contact between employees could therefore have a positive effect on IMIC.

Zakaria et al. (2004) add that difference across cultures can have their effect on intra- and inter-organizational collaboration, but often these differences can be overcome by gaining trust. Trust is gained by knowing each other, and previous contact can therefore influence trust between two people (Zakaria et al., 2004). At last, Williams (2007) points out in her literature study to construct a threat model for inter-organizational collaboration, that trust can work as a positive factor in relationships that lack authority. Collaborating across boundaries often creates situations where relationships of authority are missing, and can therefore hamper collaboration. By gaining trust and contacting each other up front, information will be shared more freely, people will not need to monitor each other and previous contact will increase the feeling of sharing risk (Williams, 2007; Curral & Judge, 1995).

2.5.4 CONTROL VARIABLES AT THE INDIVIDUAL LEVEL

Besides the previously described factors, IMIC will also be controlled for the individual factors gender, age and degree of foreignness. Gender and age have not been studied on their possible effect on collaboration, but have been studied for technological adaptation (Ardichvili et al. 2006; Morris et al. 2005). Virtual collaboration is often used when crossing large distances and uses technology to connect employees (Ardichvili et al. 2006). Morris et al. (2005) point out in their empirical study of gender and age differences in technological adaptation, that the rapidly developing technological market and the increasingly aging workforce has a negative impact on technological adaptation. Older employees more often resist the use of technology and could therefore collaborate less, because of the exclusion of virtual collaboration (Morris et al. 2005 & Ardichvili et al. 2006). Wang et al. (2009) also point out in their empirical study of gender, age and mobile learning technology that the older generation has more difficulty in adapting to technology than the younger generation.

Gender did not have any effect on technological adaptation according to Morris et al. (2006) and Wang et al. (2009) proved that gender only influenced technological adaptation for the female counterparts in older generations. Wang et al. (2009) noted that it was slightly significant and pointed out that gender probably doesn't have any effect on technological adaptation. This thesis will therefore not suspect gender to affect collaboration, because it could possibly affect virtual collaboration.
The last control variable is 'degree of foreignness'. Degree of foreignness is the degree to which employees consider themselves foreign or native to the country they work in. Slangen (2011) described in his study on communication and establishment entries, that acquired business units with native staff often creates a 'we versus them' perspective. This perspective creates a lack of communication between the acquired business unit and the parent firm. A lack of communication could also mean no collaboration between the acquired business unit and the rest of the MNE. Slangen (2011) says that newly created business units with MNE foreign staff will communicate more with the MNE, than employees of a recently acquired subsidiary, because of familiarity and previous experience with the MNE. Cultural distance might also be smaller when a subsidiary in another country only has foreign employees that are not native in their country of residence. Degree of foreignness is therefore used as a control variable.

2.6 LEVERAGING OR REDUCING THE EFFECT OF DISTANCE AND BARRIERS

Certain aspects of collaboration and communication, like sharing codified knowledge and having social interaction with distant colleagues, have gotten easier because of IT, but like Tanriverdi (2005) pointed out in his study, it is not a solution to all problems. A new era of enterprise 2.0 technologies is introduced to increase collaboration between internationally dispersed business units, hence trying to overcome old problems with IT. Enterprise 2.0 technologies are technologies that are based on the web, saying they are free of any software and purely used on the Internet (Bughin, 2007). According to Alberghini et al. (2013) and Bughin (2007), new software like 'enterprise social networks'[2] and technologies like conference calling do increase the collaboration rate of MNE's. Despite enterprise 2.0 technologies, discontinuities and other barriers can still have an impact on several aspects of collaboration, which cannot always be overcome by IT (Hansen & Nohria, 2004; Ambos & Ambos, 2009).

For example when knowledge has a high degree of tacitness, it becomes harder to transfer with IT, and MNE's must consider bringing people with tacit knowledge to places where it is needed (Chang et al. 2012; Argote & Ingram, 2000). Bringing knowledge to places could be done by sending expatriates to other countries where the MNE is located (Chang et al. 2012), or providing training programs to spread knowledge between different business units (Argote & Ingram, 2000), which would all fall under personal communication mechanisms (Ambos & Ambos, 2009).

[2] An Enterprise Social Network is a social network on the Internet to connect workers of the same company and thereby create an environment where employees can identify and leverage knowledge within the company.

At last, studies often find that management is not taking care of employees that withhold or resist to collaborate and thus are not willing or motivated to increase the collaboration of a MNE (Lucas, 2006; Hansen & Nohria, 2004; Minbaeva et al. 2004). Lucas (2006) points out that proper management of business units, consisting individualism/collectivism, masculinity/femininity, and barriers comprising these cultural traits, should be handled in time by senior management in order to reduce cultural distance. Hansen & Nohria (2004) advise senior management to watch employees' willingness and motivation to help and be helped by others, in order to stimulate collaboration. Minbaeva et al. (2004) point out that, hiring senior managers with a different cultural background and experience can reduce the barriers for collaboration across borders and between different cultures within the MNE, because of their understanding of the different cultures. Different methods and technologies to reduce the effect of discontinuities and barriers are present in literature, but it is not clear whether and if so, how MNE's are affected by these methods and technologies. This thesis tries to clarify the use and effect of the previous methods and technologies, by both interviewing senior management and collecting data on the employees' use of collaboration technologies.

2.7 CONCLUSION

After reading the previous paragraphs, you can say that slowly scholars came to the conclusion that competing on sheer size and scale does not always make an MNE the market leader (Buckley & Casson, 1976). More often having the ability to use all the knowledge that is present in your MNE and successfully sharing that knowledge with knowledge transfer and project collaboration does increase MNE's success (Szulanski, 1996; Hansen & Nohria, 2004). At the beginning of this chapter the question

"What are the incentives for IMIC, according to the literature?"

was raised. To study the incentives for IMIC, this thesis first needed to know the academic research revolving around international collaboration. After thorough literature reviews this thesis can say that Szulanski, 1996 is often referred to as the starting point of what seems to be literature regarding international collaboration and effects of distance and barriers on that international collaboration. But since Buckley & Casson (1976) already pointed out that MNE's have trouble using the knowledge that is present in their globally dispersed company, they can be seen as the real starting point for international collaboration research regarding MNE's. Casson (1987) also wrote a more detailed book on "The MNE theory" which elaborated more on ways how MNE's collaborate and difficulties regarding collaboration that can be noticed.

Szulanski (1996) later on showed that there are certain barriers to international collaboration, which reduce the effectiveness and successfulness of international collaboration. This opened up a whole new field of research regarding distances and barriers to intra- and inter-organizational collaboration. Finally scholars started to combine the different distances to find the most important factors that influence collaboration.

The most commonly found distances and barriers have been described in the previous theoretical framework. Boschma (2005) and Knoben & Oerlemans (2006) showed that several proximities (small distances) could be incentives for inter-organizational collaboration. Boschma (2005) and Knoben & Oerlemans (2006) distinguished 6 proximities that influence international collaboration namely, cultural, institutional, cognitive, social, technological and geographic distance. Boschma (2005) and Knoben & Oerlemans (2006) also found that some distances are ambiguous and should be researched with care. Eventually a selection of cultural distance (Hofstede, 1991), institutional distance (Kostova & Roth, 2002), geographic distance (Storper & Venables, 2004) is made to cover effects of distances on IMIC. Once distances are reduced, and similarities arise between two different business units of an MNE, these similarities become incentives for IMIC. A set of barriers can still obstruct incentives for IMIC, but with factors like IT and proper management, these barriers can be conditioned. Therefore, when distances are small and there are few barriers or barriers are conditioned, incentives for IMIC arise more easily.

The second partial question that can be answered is:

'*Which distances and other barriers can theoretically have a positive or negative effect on IMIC?'*

The selection is based on extensive literature reviews. Boschma (2005) and Knoben & Oerlemans (2006) posed several proximities that are seen as incentives to IMIC. Organizational proximity however is ambiguous according to Boschma (2005) and Knoben & Oerlemans (2006). To reduce the chance of studying similar distances and proximities, a selection of distances and barriers has been made, that are often cited as affecting collaboration and knowledge sharing in academic literature. At the Business Unit (BU) level high geographic distance can affect IMIC negatively, because of the difficulty in connecting employees face-to-face (Storper & Venables, 2003). High cultural distance can affect IMIC negatively, because of contradicting goals as explained in paragraph 2.3.2 (Lucas, 2006). High institutional distance can affect IMIC negatively, because of risk bearing of the party that starts economic transactions with a country that has a lacking institutional system.

Barriers at the BU level that affect IMIC are specialization, which can pose a threat to IMIC when absorptive capacity of one of the Business units is low. Therefore that BU is unable to absorb best practices of other Business units and IMIC will hamper (Szulanski, 1996). Low business unit age can have a negative affect on IMIC, because of few connections with other Business units and newness of the network and practices of the MNE (Bauer & Matzler, 2014).

On at individual level, low willingness and motivation to collaborate can affect IMIC negatively, when employees rather keep knowledge to themselves than share knowledge (Hansen & Nohria, 2004). Thereby, willingness and motivation to collaborate can decrease when there are no opportunities to connect with other employees (Hansen & Nohria, 2004). High user resistance can decrease IMIC, when employees do not adapt technology that is used

to collaborate with other international employees (Mithas et al. 2012; Ambos & Ambos, 2009). More social interaction can have a positive effect on IMIC, due to the possibility to create trust and get to know each other's capabilities (Noorderhaven & Harzin, 2009; Breschi & Lissoni, 2003). All previous factors are cited often in research regarding distances, barriers and international collaboration, and are therefore taken into account in this study.

2.8 CONCEPTUAL FRAMEWORK

The theoretical framework leads to the conceptual framework shown in Figure 2. First of all, the factors within the red circle comprise of distances between operational communities (BU level) that affect IMIC. These are all *distances* and measured at the BU level and therefore located together. Other *barriers* (green circle) also affect IMIC. These *barriers* are not considered distances, but do have an effect on IMIC according to the literature. Therefore these barriers are located together. The other barriers are split up in barriers consisting on the business unit level (dark blue) and on the individual level (light blue) and are not necessarily country specific. Distances and barriers can affect IMIC on the national, business unit and individual level, but this effect is conditioned by IT and other methods that could have an impact on IMIC (blue circle). These conditional factors are checked, because they can both have an effect on the individual and on the business unit (BU) level.

Different units of analysis (business unit and individual level) are used in this study, in order to cover different factors that influence intra-multinational international collaboration (IMIC). On the business units level, leading managers and executive directors might be influenced by other factors than the employees on the individual level. On the business unit level, decisions are made with a different goal than on the individual level. For example, a business unit that does not want to collaborate with another business unit, which is situated in a country with poor institutions. That might be a reason for the management of a business unit to be reluctant in collaboration, while employees are wiling and motivated to collaborate with that business unit. To find differences in factors that matter for the business unit level and for the individual level, this thesis is divided between those units of analysis.

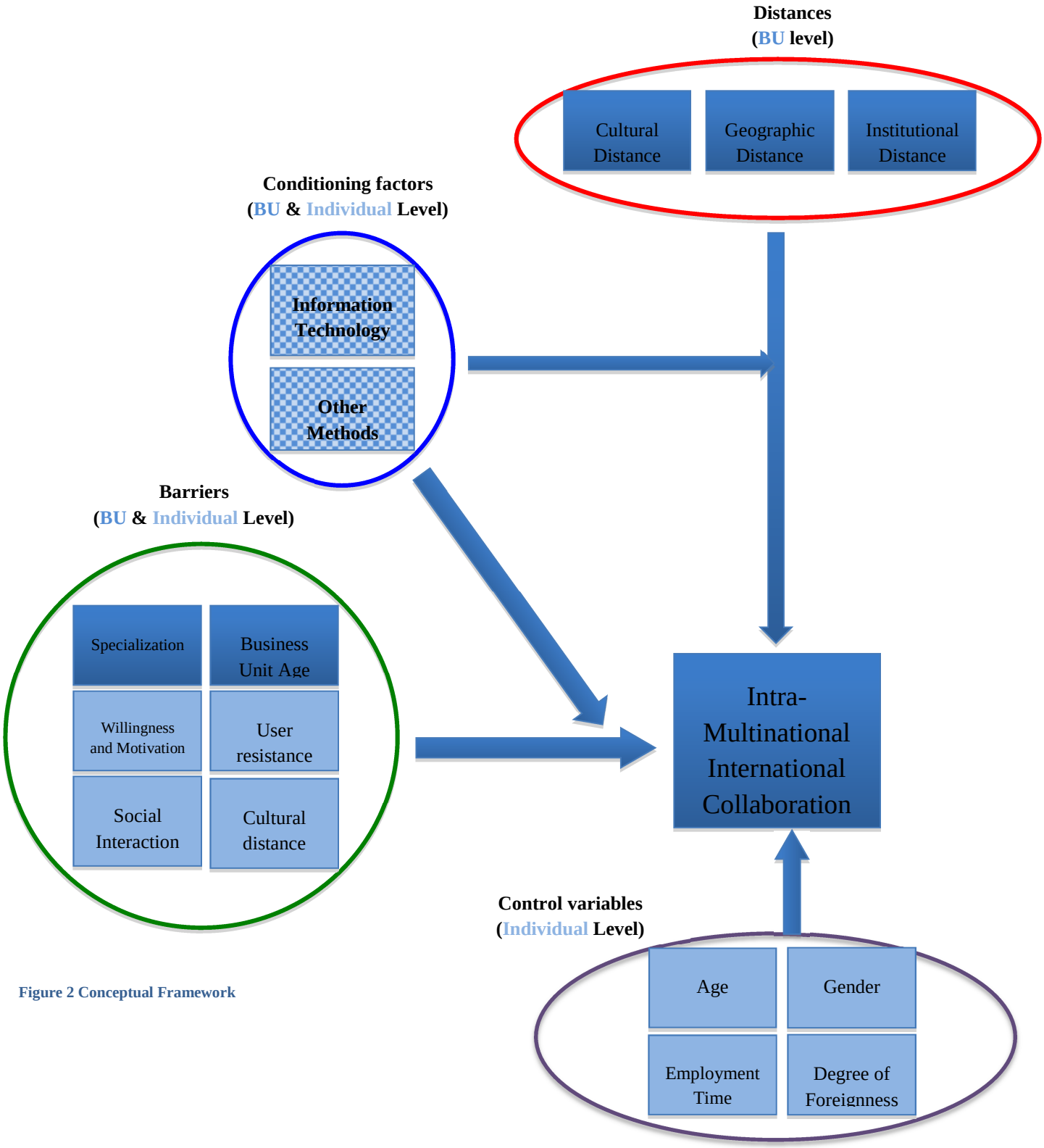

Figure 2 Conceptual Framework

2.8.1 HYPOTHESES

The theoretical framework explained why several factors affect IMIC. In the empirical literature these factors were not always measured on the MNE level or measured for collaboration, but on national scale and for knowledge transfer. Because of the lacking knowledge as result of the scarce literature, this thesis reflects the factors mentioned in the conceptual framework on ARCADIS, which is used as a case in this thesis. The following hypotheses have been set up based on the literature:

1. *High cultural, institutional and geographic distance are negatively associated with IMIC (business unit level)*
2. *High specialization (low absorptive capacity) is negatively associated with IMIC (business unit level)*
3. *Employees that interact socially with international colleagues are more inclined to IMIC than employees that are not socially interacting with international colleagues (individual level)*
4. *Employees that use available technology to collaborate with international colleagues are more inclined to IMIC than employees that resists technology to collaborate with other international colleagues (individual level)*
5. *Employees that are wiling to share knowledge with other international colleagues and are motivated to help other international colleagues are more inclined to IMIC than employees that do not want to share knowledge and do not want to help other international colleagues (individual level)*
6. *Employees with a high degree of Power Distance (PD) or Uncertainty Avoidance (UA), Masculinity (MF) and Collectivism (IC) are less inclined to IMIC than employees with a low degree of PD, UA, MF and IC (individual level)*

3 METHODOLOGY

3.1 DATA COLLECTION

This thesis conducts empirical research with a questionnaire for leading managers and an employee questionnaire as primary source of empirical data. Hypotheses have been deduced from theory, to point out relationships between theory and the collected data (Bryman, 2012). Research in this thesis is quantitative, with statistical analysis of the data and through categorization of answers to open questions.

Due to the fact that leading managers pointed out that doing an in-depth interview would require too much of their time and due to the fact that interviewee's were dispersed across several time-zones, this thesis has chosen to do self-completion questionnaires. According to Byman (2012) self-completion questionnaire, compared to in-depth interviews, save time and money in the research process. Although in-depth interviews have the ability to dig deeper into the knowledge of the interviewee, by asking follow-up questions, self-completion questionnaires can compensate this to some extent by several open questions (Bryman, 2012).

The self-completion questionnaires in this thesis comprise of multiple-choice questions and open questions. The next paragraph explains both the self-completion questionnaire for leading managers and the employee questionnaire. Both self-completion questionnaires for leading managers and the employee questionnaire have been confined to people working for the environment department of ARCADIS (the ARCADIS environment department will be further referred to as ARCADIS). Researching the entire MNE would take to much time, which was not available for this thesis and therefore the Environment department has been chosen, because of promised support and current contacts. As me

3.2 THE RESEARCHED MULTINATIONAL ENTERPRISE: ARCADIS

In this thesis Intra-multinational international collaboration (IMIC) is researched for the multinational enterprise (MNE) ARCADIS. ARCADIS is an originally Dutch company that started out in 1888 as Heidemaatschappij. Nowadays it is one of the leading global natural and built asset design and consultancy firms and is working on projects regarding engineering, design application, consultancy and management services (ARCADIS, 2014 A). Employee count in 2013 was over 22.000 and ARCADIS has over 300 offices in more than 40 countries (and growing). In this thesis the environment department of ARCADIS is researched which has over 3000 employees. Other departments like Buildings, Infrastructure, Water and Management services are not taken into account in this study. ARCADIS is a MNE that works in Operational Communities (further on abbreviated as OpCo), which usually consist of several offices in a country or in some cases (for example the Middle East) in a region. Since OpCo's are similar to the definition business unit in academic literature, this thesis will further refer to business units (BU) instead of OpCo's. A business unit is therefore seen as ARCADIS as a whole in one country (like ARCADIS Brazil, ARCADIS Canada etc.) The main Business units within the Environment department are USA, Canada, Brazil, Chile, UK, the Netherlands, Belgium, France, Germany, India, the Middle East and Asia

(ARCADIS, 2014 A). The figure below shows the amount of offices of all ARCADIS departments per geographic location. The figure shows that a large part of the offices are located in the USA and Europe.

Figure 3 Global offices of ARCADIS (ARCADIS, 2014 B)

3.3 LEADING MANAGERS QUESTIONNAIRE

First of all, self-completion questionnaires among leading managers in 12 countries/regions are developed in order to map collaboration of the past five years between different countries/regions where the ARCADIS environment department is located. The questionnaire uses predefined statements and a few open questions to collect data. In this thesis, self-completion questionnaires are useful, because of a standardized answers range that can later be compared between different Business Units (BU) (Bryman, 2012). Thereby, the chosen leading managers are spread across different time zones and have demanding jobs, and similar leading managers in Canada, the UK and the Netherlands said they preferred to fill out the questionnaire in their own time. Leading managers have knowledge of the employees working in their business unit, because the questionnaire contains questions regarding absorptive capacity of their employees and willingness and motivation. After consult with several senior managers of Canada, the UK and The Netherlands, and some global knowledge leaders (people responsible for the international community of the environment department) a selection of senior managers and directors has been made. This selection of leading managers

was advised by the global knowledge leaders and senior management, because of their extensive knowledge of employees working in their business unit and the overall view of international projects that they have. This selection of leading managers is made by ARADIS, which could create a bias, due to the fact that leading managers might not be chosen objectively. However getting advised on the selection of leading managers was the only way to create a decent data pool on short notice.

The questionnaires collect information of leading managers about collaboration consisting of knowledge sharing and project collaboration between business units. The table below shows the leading managers that were selected and who represent their business unit (Table 3-1). Names are not shown, since anonymity was guaranteed to these leading managers. The highlighted green cells show leading managers that responded to the self-completion questionnaire.

Leading managers representing different Business units Response (Red = No, Green = Yes)	
BU - Unites States	Leading Manager (Denver, EA group)
	Leading Manager (Philadelphia EA, group)
	Leading Manager (Portland, SEC group)
BU - Canada	Leading Manager (Toronto, EA group)
	Leading Manager (Toronto N&A group)
BU - Brazil	Leading Manager (Sao Paulo, EA group)
	Leading Manager (Sao Paulo, EA group)
BU - Chile	Leading Manager (Santiago, EA group)
	Leading Manager (Santiago, EA group)
BU - The Netherlands	Leading Manager (Arnhem, EA group)
	Leading Manager (Arnhem, N&A group)
BU - Belgium	Leading Manager (Brussels, EA group)
	Leading Manager (Brussels, BIO group)
BU - United Kingdom	Leading Manager (London, EA group)
	Leading Manager (London, ENV Construction)
BU - France	Leading Manager (Paris, EA group)
	Leading Manager (Lyon, EA Group)
BU - Germany	Leading Manager (Cologne, EA group)
	Leading Manager (Darmstadt, EA group)
BU - Poland	Leading Manager (Warsaw, EA group)
BU - Middle East	Leading Manager (Muscat, EA group)
	Leading Manager (Abu Dhabi, EA group)
BU - India	Leading Manager (New Delhi, EA group)
	Leading Manager (Mumbai, EA group)

Table 3-1 Population of leading managers that responded to the questionnaire (EA=Environmental Assessment, N&A= Noise and Air, SEC=Strategic Environmental Consulting, BIO=Biodiversity) (N=24)

The questionnaires to leading managers of business units were send as attachment to a formal letter of the author to invite leading managers to participate in this research project. The point that letters were written and signed by the author might create a non-response, since leading managers do not want to share knowledge of ARCADIS with an independent researcher. Therefore emails were send on behalf of the global knowledge leaders of the ARCADIS environment department, in order to increase the response-rate and to reduce the chance that contacted leading managers would not categorize the email as unimportant. Within the questionnaire, information about international collaboration is collected with the 'roster recall method'. The roster recall method consists of a list with all actors (in this thesis leading managers that represent a business unit of ARCADIS) in the network, and asks interviewees about the existence, importance and the given relationship actors have with each other BU (Giulliani & Pietrobelli, 2011).

The first part of the leading managers questionnaire consisted of the roster recall method. All 12 business units are listed in the first part of the questionnaire and leading managers are asked three questions per business unit related to the frequency of IMIC between the two Business units (often, sometimes or never), the sort of collaboration that is happening (knowledge sharing, project collaboration or both) and the reason for existing or non-existing collaboration. The leading managers questionnaire can be found in Appendix E.

Next to the sort and degree of collaboration, absorptive capacity of business units of ARCADIS is measured with questions developed by Chang et al. (2012) regarding abilities and skills of their employees regarding knowledge implementation. Answers to the questions show whether the leading managers of a business unit think their employees are capable of implementing international knowledge in business unit. Following the part of absorptive capacity comes a part of the questionnaire, which poses questions to the leading managers about the willingness and motivation of the employees in their business unit. Questions comprise of reasons to withhold knowledge from other colleagues, motivation to work abroad and willingness to help other colleagues. The questionnaire ends with an open question where the leading managers can write additional comments with regard to the current influences on IMIC and possible improvement of IMIC.

3.3.1 NON-RESPONS OF THE LEADING MANAGERS QUESTIONNAIRE

The actual questionnaire was sent in May 2014 to the selection of 24 leading managers. Of the 24 contacted leading managers, 15 leading managers actually filled out the questionnaire representing their business unit (BU). Part of the non-response of the leading managers could be explained by the job positions of the contacted leading managers. Most of the contacted leading managers were senior managers or members of the executive board of one of the Business units of ARCADIS. People in these positions receive a lot of emails per day, which can result in the email on the IMIC questionnaire ending on the bottom of the leading managers inbox. Thereby, other managers said that emails are categorized on importance and

questionnaires often end in a pile of emails with less importance. To reduce the chance that the questionnaire would end up in an endless pile of less important emails, the questionnaire was sent on behalf of a global knowledge leader. Several leading managers responded within the first month, but eventually it took several reminder emails and a few phone calls to reach the 15 filled out questionnaires in July 2014. Leading managers that were contacted in the USA and Germany never responded to any of the reminders, which created a non-response on for these Business units. Eventually leading managers represented 10 of the 12 contacted Business units, which accounts for a response rate of 83%.

3.4 EMPLOYEE QUESTIONNAIRE

In the formal letter to the leading managers of the 12 Business units, the leading managers are also asked to distribute an employee questionnaire among their employees. The employee questionnaire is attached as a link to a website, where the questionnaire can be filled out. Access to the website is provided by the communication department of ARCADIS USA. Due to the fact that this thesis is an external research, management of ARCADIS did not want the questionnaire to be distributed via global email. Time spend on an external questionnaire is deemed as lost time for the company and therefore leading managers were initially asked to distribute the employee questionnaire to at least 20 people within their BU. The number of 20 people is chosen to at least receive a solid amount of responses per BU, and as a compromise to the executive management of ARCADIS, to reduce time spend on the questionnaire.

In the end the Netherlands, Canada and Belgium sent the employee survey to respectively 94, 120 and 54 employees, while Brazil and Chile distributed it among respectively 20 and 20 employees. The Technical Knowledge Institute (TKI) of ARCADIS USA, which also provided access to the survey website, posted the employee survey on a website, which is accessed frequently by approximately 120 employees (these employees are all connected to the environment department of ARCADIS). Other leading managers did not respond with an estimate of the amount of employees that were contacted. Responses for employees in these Business units were not as high as for the previously described Business units. If a rough estimate of 20 employees is maintained for the Business units that did not respond to the question regarding contacted employees, the amount of contacted employees is approximately 500. After 3 months 167 employees responded to the questionnaire, accounting for a response rate of 33,4%. The questionnaire can be found in Appendix F.

The employee questionnaire starts out with a short introduction of the goal of the research and a definition of international collaboration to introduce the employees with the intra-multinational international collaboration and to define certain definitions. The first question asks if employees often collaborate with other international colleagues and which creates an immediate dependent variable for this research. Afterwards questions are posed regarding opportunities to collaborate internationally, technologies increase international collaboration, willingness and motivation to collaborate internationally and the ease of identifying knowledge within ARCADIS.

After the introductory questions regarding cultural distance, a section of questions based on the cultural dimensions of Hofstede (Hofstede, 2001). Questions of the official questionnaire of Hofstede are developed for calculating country averages and not for the individual or MNE level. Since this thesis studies ARCADIS, the questionnaire needs to be applicable to the individual level (and if needed can be aggregated to the BU level). As Yoo et al. (2011) explained: 'using national averages can cause ecological fallacy when applied to the individual level. That is why measuring cultural dimensions on the individual level gives a more detailed view of cultural dimensions within a specific group' (p. 195). Groups are in this case similar to ARCADIS Business units. Yoo et al. (2011) and Wu (2006) addressed the cultural dimensions of Hofstede in a new way, and both created questionnaires for cultural dimensions on the individual and MNE level. Both questionnaires have increased reliability and better psychometrical value[3] than the standard national cultural dimensions of Hofstede. The questionnaires can be used on the individual and MNE level, to show the effect of cultural dimensions on work related subjects (Yoo et al., 2011; Wu, 2006).

Values for cultural distance are measured per cultural dimension power distance (hierarchical atmosphere in your working environment), uncertainty avoidance (the need for clear rules and regulations for work), masculinity (masculine and result drive culture in the working environment) and collectivism (group welfare before individual welfare). Every cultural dimension can then be used on the individual level, or aggregated to create averages per BU. After the questions regarding cultural distance, employees were asked if they deem their level of English sufficient for working on international projects. Since all international communication and international projects are executed in English, having a good English proficiency seems an important factor. Literature also pointed out that language could be a factor of influence on IMIC (Ambos & Ambos, 2009; Zaheer et al. 2012).

Besides asking leading managers about the willingness and motivation to share knowledge and collaborate internationally, employees are also asked a series of questions regarding willingness and motivation to collaborate with international colleagues. This information can be used at the individual level, while information of the leading managers can be used at the BU level. To measure the willingness and motivation to collaborate of employees, questions are based on the survey used in the study of Hansen & Nohria (2004). Although rather old, this article is still often cited regarding willingness and motivation (Nold III & Herbert, 2012; Ramthun & Matkin, 2012).

In addition to other factors, user resistance of technology is measured on the individual level with questions regarding the IT currently in use. Employees are asked about the IT that is currently available to employees within ARCADIS. The employee questionnaire finishes with some open questions asking for employee's opinion regarding barriers that might exist in the

[3] Psychometrical value, is the value created by studies covering knowledge, abilities, attitudes, personality traits and educational measurement (Yoo et al. 2012)

international collaboration network of ARCADIS and possible solutions to these barriers that they may pose to the executive board of ARCADIS.

Some general questions are asked regarding the control variables gender, age and degree of foreignness "considering yourself more foreign or native to the country where you work in". In the literature gender and age are studied with regard to technological adaptation (Morris et al. 2005 & Ardichvili et al. 2006, Wang et al. 2009). According to the literature, technological adaptation is related to collaboration (Kim & Kankanhalli, 2009), and therefore these control variables are included in this study. Thereby being foreign in the country where you work in might influence the ability to connect with other Business units of the MNE (Bauer & Matzler, 2014) and therefore degree of foreignness has been included in the control variables. Employment time has not been studied with regard to collaboration, but has been included in this study of Intra-Multinational International Collaboration (IMIC). The possibility exists that previously stated control variables explain IMIC and if not taken into account, can decrease the reliability of the logistic regression analysis (Bryman, 2012).

3.4.1 NON-RESPONSE OF THE EMPLOYEE QUESTIONNAIRE

Table 3-2 shows the response rate as part of a total of contacted employees.

Business Unit	Responses of employees	Total employees contacted	Response percentage per BU
USA	38	120	32
The Netherlands	30	94	32
Canada	29	120	24
Belgium	20	54	37
Brazil	17	20	85
Chile	17	20	85
India	6	20	30
Poland	4	?	?
France	1	?	?
Middle East	1	?	?
Other	1	?	?
Germany	0	?	?
Total	**165***		

Table 3-2 Responses to the employee questionnaire per business unit (* 2 responses did not include the BU where they work for)

As mentioned before, the employee questionnaire is attached to a formal letter to the chosen leading managers that represent selected Business units of ARCADIS. Some leading managers did respond to the leading managers questionnaire and distributed the employee questionnaire, but others only answered the leading managers questionnaire or only distributed the employee questionnaire. If response and the distribution of questionnaire regarding are added up per BU the following table originates.

BU that responded to the leading managers questionnaire	BU that distributed employee questionnaire		Total
	Yes	No	
Yes	6	4	10
No	1	1	2
Total	**7**	**5**	**12**

Table 3-3 Response and distribution of questionnaires by business units of ARCADIS

Distribution of the employee survey is dependent on the leading managers that represent their BU and therefore part of the non-response can be explained by not distributing the employee questionnaires by these leading managers. Sometimes leading managers distributed the employee questionnaire, but a low response followed. These leading managers were requested to send a reminder to their employees. In some cases (Chile, Brazil) this increased the amount of responses, but sometimes response still did not increase (UK, Middle East, India, Poland). Leading managers that did not respond to emails requesting them to distribute the questionnaire were also sent a reminder email. Because of the non-response by some leading managers data regarding certain business units (Germany and the USA) is missing. Thereby, some of the leading managers did not distribute the employee questionnaire (Germany, Middle East, France and UK), which also creates a bias in data for certain Business units.

All emails requesting distributions of questionnaires are send by global knowledge leaders and the leading managers in charge of those employees sent reminders to employees. For the USA, response is dependent on employees visiting the TKI Environment website. After notification on the TKI website, the employee questionnaire was online for a limited amount of time (1 month) and therefore could be missed by certain employees of the ARCADIS USA business unit. This can also account for a non-response regarding employees in the USA.

3.5 OPERATIONALISATION AT THE BUSINESS UNIT LEVEL

In this thesis a lot of different units of analysis are used, which means that factors are measured on different spatial levels. To assess the effect of the different factors on IMIC, factors have been split up in three different units of analysis. Cultural distance is measured at the business unit (BU) level, which is one whole operational community of ARCADIS (for example ARCADIS Brazil or ARCADIS Canada). These Business units work in their national environment, which is influenced by institutional distance, that differs per country and geographic distances from one BU headquarter to another BU, headquarter. On the business unit level, specialization and business unit age are assessed, as well as willingness and motivation of employees in that business unit. These measures account for an entire business unit, based on the perception of leading managers of that business unit. At last factors like user resistance, willingness and motivation, social interaction and cultural distance (again) together with the control variables gender, age and degree of foreignness are measured on the individual level.

3.5.1 OPERATIONALISATION OF INTRA-MULTINATIONAL INTERNATIONAL COLLABORATION (IMIC) AT THE BUSINESS UNIT (BU) LEVEL

Collaboration between the different Business units where ARCADIS is situated is measured with the roster recall method (Giulliani & Pietrobelli, 2011). The results of the roster recall method are shown in Table 3-5. Table 3-4 shows the rating method of IMIC used in Table 3-5. In Table 3-5 the left column shows the BU of which the leading managers filled out the questionnaire. Perceived IMIC ties (ties that are perceived by Business units) are shown in columns of Table 3-5. Received IMIC ties (IMIC ties perceived by other Business units) are shown in the rows of Table 3-5. Where as one BU might perceive an IMIC tie, another BU might not perceive that IMIC tie. This due to the fact that Business units are represented by leading managers which cannot always know all IMIC ties that are present. For example, business unit the Netherlands perceives IMIC ties with the business units of Belgium and Brazil. The business unit of Belgium also perceives the IMIC tie with business unit the Netherlands and therefore the Netherlands also receives that IMIC tie. Business unit Brazil on the other hand does not perceive an IMIC tie with the Netherlands and therefore there is a difference between perceived IMIC ties and received IMIC ties for business unit the Netherlands.

Both perceived and received IMIC ties are taken into account, to see if Business units score higher on IMIC if rated by them rather than by other Business units. The total numbers on the bottom row and right column show the amount of green scores that are either given by Business units or received of other Business units.

Degree	Description
++	Collaboration happens often and both in forms of project collaboration and knowledge sharing.
+	Collaboration happens sometimes and either only in the form of project collaboration or in both projects collaboration and knowledge sharing.
+/-	Collaboration happens sometimes and only in the form of knowledge sharing.
-	Collaboration isn't happening between the two countries.
x	No response.
	Domestic collaboration is not researched in this thesis

Table 3-4 Explanation of different IMIC ratings

		Perceived IMIC ties												
		US	CA	BR	CH	UK	NL	BE	GE	FR	PL	IN	ME	Total Perceived Green cells
Received IMIC ties	US													0
	CA													7
	BR													6
	CH													1
	UK													6
	NL													6
	BE													6
	GE													0
	FR													8
	PL													6
	IN													7
	ME													1
Total Received Green cells		8	6	2	1	7	6	6	5	5	2	3	4	

Table 3-5 IMIC between ARCADIS Business units (N=12)

The above table shows differences between the number of IMIC ties perceived by Business units and the number of IMIC ties received by other Business units (for example, the UK rates 4 Business units as an ‘Often’ IMIC tie, while the UK only gets rates once as an ‘Often’ IMIC tie). If IMIC ties are split up between IMIC ties perceived by Business units and IMIC ties received of Business units, the following table originates (Table 3-6). Positions are based on the highest number of ‘Often’ rated cells. If that number is equal for several business units, the number of cells that are rated ‘Sometimes’ or ‘Hardly or no IMIC’ are decisive. This selection procedure in IMIC ties eventually originated in Table 3-6, which shows the numbers of IMIC ratings and the IMIC rankings of the different business units of ARCADIS.

Perceived IMIC ties			
BU IMIC ranking	**Often IMIC**	**Sometimes IMIC**	**Hardly or no IMIC**
1. UK	**4**	**3**	**4**
2. Canada	**3**	**4**	**4**
3. The Netherlands	**3**	**3**	**5**
4. France	**2**	**6**	**3**
5. Belgium	**1**	**5**	**5**
6. Brazil	**1**	**5**	**5**
7. Poland	**1**	**5**	**5**
8. India	**0**	**7**	**4**
9. Chile	**0**	**1**	**10**
10. ME	**0**	**1**	**10**
11. USA*	**0**	**0**	**0**
11. Germany*	**0**	**0**	**0**
Received IMIC ties			
Business units	**Often IMIC**	**Sometimes IMIC**	**Hardly or no IMIC**
1. USA	**4**	**4**	**2**
2. The Netherlands	**3**	**3**	**4**
3. Belgium	**3**	**3**	**4**
4. UK	**1**	**6**	**3**
5. Canada	**1**	**5**	**4**
6. France	**1**	**4**	**5**
7. Middle East	**1**	**3**	**6**
8. India	**1**	**2**	**7**
9. Germany	**0**	**5**	**5**
10. Brazil	**0**	**2**	**7**
11. Poland	**0**	**2**	**7**
12. Chile	**0**	**1**	**8**

Table 3-6 Perceived and received IMIC ties *Non-response (N=12)

Table 3-6 shows that for example the UK perceives 4 ‘Often IMIC’ ties, it only receives 1 ‘Often IMIC’ tie of other business units. Business unit The Netherlands on the other hand, shows ‘Often IMIC’ ties are perceived and received in the same number namely 3. To see if there is a significant difference between perceived and received IMIC ties a Spearman’s correlation test has been performed.

IMIC on the business unit level has been measured with the roster recall method. Using this method, the thesis eventually computes two scores of IMIC, namely ‘perceived IMIC ties’ and ‘received IMIC ties’ (as shown in the above table). To see if a business unit (BU) perceives more IMIC than it receives; the two values have been tested on a relation to each other using the Spearman’s correlation coefficient test. Results of Spearman’s correlation coefficient (Table 3-7) show that, a higher rating on IMIC ties perceived; is positively associated to IMIC ties received (p: .022 and lower and upper interval are respectively .160

and .926 which shows that gaining one rank in perceived IMIC has a positive relation to gaining a rank in received IMIC). Perceived and received IMIC ties are therefore associated positively to each other.

	IMIC Given	
IMIC Received	Correlation coefficient	.709
	Sig. (2-tailed)	.022
	N	10
	Bias	- .053
	Std. error	.184
	Lower interval	.160
	Higher interval	.926

Table 3-7 Spearman's Correlation coefficient for given and received IMIC ties[4]

The two IMIC scores are positively associated, which means that rankings of perceived and received IMIC ties are not assigned in a random way, and therefore both can be used for analysis. This thesis however, argues that other Business units might forget having an IMIC tie with a BU, while that BU is sure that there is an IMIC tie between them. Therefore perceived IMIC ties are used in this thesis for the analyses regarding the effect of distances and barriers to IMIC and when during the analyses is referred to IMIC, it will refer to perceived IMIC ties.

3.5.2 OPERATIONALISATION OF DISTANCES AT THE BUSINESS UNIT LEVEL

To analyze the effect of the different distances studied in this thesis on IMIC, all distances have been assigned ranks. Operationalization of the different distances is explained in the following paragraphs.

CULTURAL DISTANCE

To analyze cultural distance at the business unit level, employee responses on the individual level have to be aggregated to the business unit level. Business units have previously been assigned ranks (Table 3-6) based on their IMIC scores. Since there is a difference between the numbers of filled out employee questionnaires per business unit, five business units have been chosen for analysis of distance at the business unit level.

The chosen business units are spread across three different continents and have the highest number of responses and can be used to create an equal assessment. Although the business unit of the USA did have a sufficient number of responses to the employee questionnaire (38), IMIC at the business unit level could not be calculated due to the non-response of Business

[4] The test has been excluded of IMIC rankings for the USA and Germany, since leading managers in those business units did not respond to the survey. Relations between perceived and received rankings of the USA and Germany would create an error in the correlation test and influence the outcomes and reliability.

units to the leading managers questionnaire (which supplies the dependent variable at the BU level). Therefore the USA business unit has been excluded from the analysis regarding distance at the BU level. Responses to the employee questionnaire per chosen BU are shown in the table below.

Chosen business units based on employee responses	Employee Response
BU - The Netherlands	30
BU - Canada	29
BU - Belgium	20
BU - Chile	17
BU - Brazil	17
Total	**113**

Table 3-8 Chosen business units for the cultural distance analysis on the business unit level

At the business unit level, scores for cultural distance (1-5 ranging from strongly disagree to strongly agree) have been aggregated per cultural dimension (added up and divided by the total number of responses). These aggregated scores represent cultural distance per business unit of ARCADIS. Ranks that have been assigned to the chosen business units are based on the scores shown in Table 3-9.

A first look at Table 3-9 shows no large differences between the business units. Standard deviations are small, which means that employees in every business unit are quite like-minded. To see if any of these cultural dimensions influence IMIC on the business unit level, different business units have to be assigned a ranking based on their score regarding the cultural dimension. Table 3-10 shows the rankings of every business unit on the 4 cultural dimensions.

Business unit		Power distance	Uncertainty Avoidance	Masculinity	Collectivism
BU - Belgium	Mean	2.21	3.56	1.66	3.56
	Std. dev.	.572	.376	.593	.552
	N	19	20	19	20
BU - Brazil	Mean	2.09	4.2	1.7	3.6
	Std. dev.	.462	.354	.741	.566
	N	16	17	16	17
BU - Canada	Mean	2.1	3.69	1.52	3.07
	Std. dev.	.480	.438	.608	.651
	N	29	27	29	27
BU - Chile	Mean	2.45	3.69	1.81	3.46
	Std. dev.	.383	.641	.585	.650
	N	16	16	17	17
BU - Netherlands	Mean	1.93	3.16	1.75	3.23
	Std. dev.	.304	.538	.556	.446
	N	30	30	30	29

Table 3-9 Mean scores of cultural dimensions per chosen business unit

Cultural dimension	Power distance	Uncertainty Avoidance	Masculinity	Collectivism
BU - Belgium	2	3	4	2
BU - Brazil	4	4	3	1
BU - Canada	3	1	5	5
BU - Chile	1	2	1	3
BU - Netherlands	5	5	2	4

Table 3-10 Rankings of cultural dimensions of the selected business units

INSTITUTIONAL DISTANCE

For institutional distance, ranks regarding property rights and contract enforcement are derived from two databases namely the International Property Rights Index (IPRI) (IPRI, 2013) and the Enforcing Contract database (World Bank group, 2013). The rankings of property rights and contract enforcement are shown in Table 3-11.

Business Unit	Property Right Index Rank	Contract Enforcement Rank
The Netherlands	1	3
Canada	2	6
United Kingdom	3	5
Belgium	4	2
France	5	1
Chile	6	7
Poland	7	4
Brazil	8	9
Middle East	9	8
India	10	10

Table 3-11 BU rankings regarding property rights and contract enforcement (IPRI, 2013, World Bank Group, 2013)

GEOGRAPHIC DISTANCE

To see if geographic has any specific effect on IMIC, absolute distance in kilometers is measured between main business unit headquarters of ARCADIS. The same table as Table 3-5 is taken, but this time the absolute amount of kilometers between the business unit headquarters of the contacted leading managers is stated within the cells.

	US	CA	BR	CH	UK	NL	BE	GE	FR	PL	IN	ME
US												
CA	2161											
BR	9287	8201										
CH	8871	8618	2578									
UK	7549	5718	9508	11678								
NL	7842	6061	9836	12054	419							
BE	7840	6024	9671	11896	321	166						
GE	8132	6350	9821	12100	645	303	324					
FR	7869	6006	9412	11653	344	430	265	470				
PL	8548	6927	10672	12992	1450	1031	1161	903	1368			
IN	13493	12504	13785	16074	7203	6791	6888	6573	7020	5791		
ME	12782	11405	12510	14996	5837	5441	5517	5194	5617	4499	1593	

Table 3-12 Geographic distances between contacted ARCADIS Business units

Once ranks are assigned to the geographic distance for every single business unit of ARCADIS studied in this thesis, the Table 3-13 originates. All distances have been measured in kilometers between the contacted business units. Once a distance between two business units is smallest compared to the other distances, that distance will be assigned rank 1. The furthest distance in kilometers between two business units is assigned rank 9. This procedure of ranking geographic distance is done separately for every business unit.

Rank	CA	BR	CH	UK	NL	BE	FR	PL	IN	ME
1	UK	CH	BR	BE	BE	NL	BE	NL	ME	IN
2	BE	CA	CA	FR	UK	FR	UK	BE	PL	PL
3	NL	FR	FR	NL	FR	UK	NL	FR	NL	NL
4	FR	UK	UK	PL	PL	PL	PL	UK	BE	BE
5	PL	BE	BE	CA	ME	ME	ME	ME	FR	FR
6	CH	NL	NL	ME	CA	CA	CA	IN	UK	UK
7	BR	PL	PL	IN	IN	IN	IN	CA	CA	CA
8	ME	ME	ME	BR	BR	BR	BR	BR	BR	BR
9	IN	IN	IN	CH	CH	CH	CH	CH	CH	CH

Table 3-13 Ranks of geographic distance between business units that responded to the questionnaire (1= closest, 9=furthest)

3.5.3 BARRIERS AT THE BUSINESS UNIT LEVEL

On the business unit level two different factors have been taken into account, namely specialization and business unit age.

SPECIALIZATION

First of all, specialization, based on the absorptive capacity of business units, is measured. In the leading managers questionnaire, managers representing their business unit are asked to rate their employees on a 5 point Likert-scale for absorptive capacity through a of statements. The questionnaire can be found in Appendix E. The results and the statements are shown in the Table 3-14.

	Business Units									
Employees have :	**BE**	**BR**	**CA**	**CH**	**FR**	**IN**	**ME**	**NL**	**PL**	**UK**
The ability to acquire new knowledge and achieve targets	4.5	5	4	3	4.5	5	4	4	4	5
A clear vision of strategy and implementation of that strategy	3.5	5	2	4	4	4	1	3	3	4
Technical competency to implement new knowledge	4.5	4	5	3	4	4	4	4	4	5
Skills to implement practices	4.5	4	3.5	3	4	4	4	4	4	5
Skills to convert international knowledge	4	5	3.5	4	3.5	4	4	4	3	4
The ability to exploit new knowledge within ARCADIS	4.5	4	3.5	4	4	4	4	4	5	5
Total (Max=30)	**25.5**	**27**	**21.5**	**21**	**24**	**25**	**21**	**23**	**23**	**28**
Mean	**4.25**	**4.5**	**3.58**	**3.5**	**4**	**4.17**	**3.5**	**3.83**	**3.83**	**4.67**

Table 3-14 Absorptive capacity of ARCADIS business units scale 1-5 (N=10)

BUSINESS UNIT AGE

Leading managers have also been asked if their business unit is acquired in the last three years. Since fairly few business units that are researched were recently acquired by ARCADIS (3), this factor has only been described, based on the answers of leading managers to the open questions in the leading managers questionnaire. The time that is passed between the acquisition of a business unit and the present is in this thesis called business unit age.

3.5.4 CONCLUSION OF OPERATIONALISATION ON THE BUSINESS UNIT LEVEL

On the business unit, distances and barriers have all been transformed into rankings for either the 10 business units that responded or the 5 chosen business units for cultural distance. Only for business unit age there was no possibility to analyze the data, because of the lacking amount of recently acquired business units in the collected data.

Due to the limited amount of time for this study, IMIC at the BU level sometimes showed differences between given and received IMIC ties. The differences could be explained, once follow up interviews were held with the leading managers that represented the Business units. Because of the absence of these follow up interviews certain data might be missing. Future research should consider the possible differences in data regarding IMIC ties.

3.6 OPERATIONALISATION ON THE INDIVIDUAL LEVEL

3.6.1 OPERATIONALISATION OF IMIC AT THE INDIVIDUAL LEVEL

To create a dependent variable for the analyses of IMIC on the individual level, employees have to rate the following statement *"I often collaborate with other international colleagues of ARCADIS"* with a 5 point Likert-scale. Employees can answer the statement regarding IMIC on a five point Likert scale, ranging from 'strongly disagree' to 'strongly agree'.

3.6.2 DISTANCE AND BARRIERS AT THE INDIVIDUAL LEVEL

Previous factors have all been analyzed based on the perception of leading managers and therefore business units that collaborate internationally with each other, but on the individual level employees themselves have directly been asked about IMIC.

Factors like social interaction, user resistance, willingness and motivation, age, gender, time employed and degrees of foreignness are measured through different statements. Some of these factors consist of several questions, which explain different outcomes. Social interaction, willingness & motivation and user resistance are measured with statements that are answered on a 5-point Likert-scale. Age, gender and time employed were all measured with multiple-choice questions containing different categorical answers.

3.7 STATISTICAL ANALYSES

3.7.1 SPEARMAN'S RANK CORRELATION TEST ON THE BUSINESS UNIT LEVEL

Researched distances and barriers on the business unit level all contain rankings. These rankings are related to IMIC rankings that were derived from the leading managers questionnaire using a Spearman's rank correlation test. Cultural distance on the business unit level is related to IMIC on the business unit level for the 5 chosen business units based on the total number of responses to the employee questionnaire. Ranks for geographic distance and institutional distance on the business unit level are related to IMIC ranks for the 10 business units that responded to the leading managers questionnaire. The Spearman's rank correlation test contains values regarding significance (below 0.05 means a significant relation) and upper and lower variables. Upper variables are used to assign a direction to the relation between two factors (for example between IMIC and institutional distance) once the rank of one factor is gaining one rank. The lower shows a similar relationship, but then for when the factor is lowered by one.

3.7.2 LOGISTIC REGRESSION ANALYSIS ON THE INDIVIDUAL LEVEL

For distance and barriers on the individual level, logistic regression analyses can be used to explain the effect of distance and barriers on the dependent variable of IMIC. Answers regarding the dependent variable have been combined for 'strongly agree' and 'agree', which form the part of employees that do often collaborate internationally and 'neutral', 'disagree' and 'strongly disagree' for employees that do not often collaborate internationally. Combining the answers in this way creates a binary dependent variable that can be analyzed with a logistic regression.

3.8 CONCLUSION

By addressing selected leading managers of ARCADIS business units, data was collected for analyses on the business unit level. Although the leading managers questionnaire was send on behalf of the global knowledge leaders of ARCADIS, still the signature of the researcher on the accompanied formal letter might have reduced the total response on the leading managers questionnaire. In the end Germany and the USA did not respond at all to the leading managers questionnaire, which creates a bias in the overall data, by not including the knowledge of these two business units (which are of importance to the overall ARCADIS network).

Thereby leading managers were selected based on the knowledge of senior management of ARCADIS the Netherlands and Canada. The selected leading managers could be chosen by the senior management to increase a positive outcome to certain answers. However, a complete random selection of leading managers was not possible, since leading managers needed to have certain knowledge in order to answer questions. This thesis did not know which leading managers had that knowledge up front and help was therefore essential.

The distribution of the employee questionnaire was requested from the same leading managers that were contacted for the leading managers questionnaire. The data collection showed a similar pattern as the collection of data on the business unit level where certain business units did not respond. Help from outside the leading managers took care of employee response for the USA, which still provided a response on the individual level for that business unit. A different more secure method of distributing the employee questionnaire might have resulted in a higher response rate.

The employees that did fill out the employee questionnaire did this on the Internet. First of all most of the questions had no missing answers, some questions were not answered. This could be because of a technical error, but although the questionnaire was completely anonymous, employees still might think answering certain questions have negative consequences.

Second of all, some questions had a high degree of 'Neutral' answers. For the statement regarding usefulness and ease of use regarding information technology the number of neutral answers was quite high. This could point to the question not being specific enough. Within ARCADIS a lot of information technology facilities are present, but questions regarding information technology in common might not cover opinions about specific information

technology. This might have also been the case for other questions. In the end 167 of the approximately 500 employees did fill out the employee questionnaire.

4 DISTANCE AND BARRIERS ON THE BUSINESS UNIT LEVEL: DO THEY REALLY MATTER FOR IMIC?

4.1 INTRA MULTINATIONAL INTERNATIONAL COLLABORATION (IMIC)

Following chapter answers the partial questions by testing several distances and barriers to IMIC on the business unit level.

To what extent are business units of ARCADIS collaborating internationally, according to leading managers representing Business units and employees of ARCADIS?

Which distances and barriers are affecting IMIC within ARCADIS according to leading managers representing business units, and how?

Rankings of geographic, cultural and institutional distance are related to ranks of IMIC with a Spearman's rank correlation test.

4.2 THE EFFECT OF DISTANCE ON IMIC ON THE BU LEVEL

4.2.1 GEOGRAPHIC DISTANCE

According to several scholars, geographic distance has a significant effect on collaboration between business units (Business units) (Ghemawat, 2001; Ambos & Ambos, 2009; Knoben & Oerlemans, 2006).

To test if there is any relationship between the rankings of IMIC and the rankings of geographic distance between business units, a Spearman's correlation test has been executed. The results of the test are shown in the table below. The numbers are based on business units where leading managers responded to the questionnaire and are rebelled off to IMIC between Business units.

Table 4-1 shows that ranks of two business units regarding IMIC are significantly related to ranks of geographic distance, namely Canada and the UK (p-value is respectively .000 and .025). The Spearman's correlation test points out that higher rankings regarding geographic distance are positively related to IMIC rankings (upper scores of 1.00 for Canada and .948 for the UK). Business units that are located further from Canada and the UK are still positively related to IMIC with these business units (lower scores of .652 for Canada and .167 for the UK). Geographic distance is positively associated to IMIC for Canada and the UK. Large or small geographic distances are both related positively to IMIC for Canada and the UK, because a higher rank (e.g. closer) on the geographic distance rankings also means a higher ranking on the IMIC rankings. The other way around a lower rank on the geographic distance rankings (e.g. further) still means a slightly higher rank on IMIC rankings for the UK and Canada. For the other studied business units, geographic distance is not associated to IMIC.

Large geographic distance according to Ghemawat (2001), Dastidar & Zaheer (2009) and Storper & Venables has a negative effect on international collaboration or related knowledge transferring activities. This thesis shows that for most of the business units geographic distance is not associated to IMIC and for the UK and Canada it is even positively associated to IMIC. Although the outcomes differ, this thesis has specified the research on intra-multinational collaboration where the other studies focused on inter-multinational collaboration (Ghemawat, 2001; Dastidar & Zaheer, 2009). Therefore a difference might exist between the two kinds of collaboration regarding the influence of geographic distance.

		Geographic Distance									
		CA	*BR*	*CH*	**UK**	*NL*	*BE*	*FR*	*PL*	*IN*	*ME*
IMIC	**Correlation**	**.903**	*.309*	*.273*	**.697**	*.529*	*.503*	*.527*	*.273*	*-.322*	*-.333*
	Sig.	**.000**	*.385*	*.446*	**.025**	*.116*	*.138*	*.117*	*.446*	*.364*	*.347*
	N	**10**	*10*	*10*	**10**	*10*	*10*	*10*	*10*	*10*	*10*
	Bias[5]	**-.034**	*-.011*	*-.010*	**-.052**	*-.039*	*-.050*	*-.042*	*-.032*	*.004*	*.005*
	Std. error	**.089**	*.366*	*.392*	**.192**	*.267*	*.257*	*.249*	*.304*	*.390*	*.401*
	Lower	**.652**	*-.542*	*-.616*	**.167**	*-.086*	*-.105*	*-.059*	*-.385*	*-.946*	*-.963*
	Upper[6]	**1.000**	*.888*	*.888*	**.948**	*.925*	*.875*	*.887*	*.765*	*.528*	*.528*

Table 4-1 Relationship of IMIC and geographic distance (N=Business units of ARCADIS that responded to the questionnaire)

4.2.2 CULTURAL DISTANCE

Table 4-2 shows the test results of the Spearman's correlation test for the 4 cultural dimensions Power Distance (PD), Uncertainty Avoidance (UA), Masculinity (MF) and Collectivism (IC). Every cultural dimension has a significance score that is above the 95% confidence interval (Sig. > 0.05). This means none of the ranks of the cultural dimensions is associated to the ranks of IMIC. The fact that a Spearman's rank correlation has been executed for only 5 business units could create a bias for this test and therefore point to non-significant relations. Still, in this thesis no association between the different cultural dimensions on the business unit level and IMIC could be found.

[5] Bias is a value that controls for natural bias of researchers that perform the Spearman's correlation test.

[6] Upper and lower scores refer to the relation of the two rankings that are tested in the Spearman's correlation coefficient test. Upper refers to a relation with the other factor once a rank is one step higher, while the lower score refers to the relation of two ranks once the rank is one step lower.

		Power distance	Uncertainty avoidance	Masculinity	Collectivism
IMIC	**Correlation**	-.500	.100	-.700	-.700
	Sig.	.391	.873	.188	.188
	N	5	5	5	5
	Bias	.052	-.068	.098	.025
	Std. error	.448	.643	.428	.405
	Lower	-1.000	-1.000	-1.000	-1.000
	Upper	.577	1.000	.685	.598

Table 4-2 Spearman's rank correlation test for cultural distance and IMIC

LANGUAGE

In this thesis as a part of cultural distance, language is also taken into account. Leading managers were asked if they thought different languages influenced IMIC. Leading managers from business units where English is not the native language (Chile and Brazil, the Netherlands), answered that language had an influence on IMIC.

One reason is that reports are usually written in the native language and employees that have to work on projects in another country might have to work in the native language of that country. Once that language is not spoken, project collaboration is hardly possible (with the exception of a few global projects where English is the main language for reports). Sharing codified knowledge also has to be done in English. Sharing codified knowledge might need translation of documents, which takes time and therefore hampers IMIC. Another reason for lacking IMIC is due to the fact that not all employees have a sufficient English proficiency. Leading managers of Chile, Brazil, France and the Netherlands point out that not all employees have a sufficient English proficiency to work on international projects (Appendix A).

4.2.3 INSTITUTIONAL DISTANCE

Institutional distance is measured, using the Institutional Property Rights Index (IPRI) (2013) and the Contract enforcement statistics of the World Bank Group (2013). The two databases are only based on formal institutions, since informal institutions have a big overlap with cultural distance. Table 4-3 shows the results of the Spearmans's rank correlation test, for the relation between rankings of ARCADIS Business units and property rights and contract enforcement rankings of the countries where those Business units operate in.

Table 4-3 shows that the rankings (Table 3-11) of property rights are the only rankings that have a significantly positive relation to the rankings of IMIC (p: .003). Higher IPRI ranks are positively related to IMIC ranks, while lower IMIC rankings also have a slightly positive association with ranks on the IPRI. The results show that there is a positive relation between IMIC and property rights meaning having strong property rights is positively related to IMIC. Gaining one rank on the international property rights index also means increasing 0.95 ranks on the IMIC rankings.

		Property Rights	Contract Enforcement
IMIC	**Correlation**	.830	.515
	Sig.	.003	.128
	N	10	10
	Bias	-0.56	-0.44
	Std. error	.134	.234
	Lower	.403	-.169
	Upper	.950	.823

Table 4-3 Spearmans rank correlation for institutional distance

As previously discussed institutional distance might have a negative effect on IMIC through formal institutions of countries where business units operate in, but institutional distance can also have a negative effect through organizational institutions (Boschma, 2005; Knoben & Oerlemeans, 2006). Looking at the answers of the leading managers questionnaire, 8 leading managers representing business units mentioned a form of institutional distance within ARCADIS that according to them has a negative effect on IMIC of business units (Appendix A).

Because of the extensive descriptions regarding institutional distance in the questionnaire, responses regarding organizational institutional distance are categorized into three groups:

- Administrative/accounting institutions consist of slow procedures regarding project approval, tax rates that are applied to international work, visas, currency calculations and contracting regulations;
- Billability is a percentage that covers the worked hours per employee that actually create revenue (e.g. work on projects for clients);
- Hourly rates are set per business unit and the actual skill level of the employee.

Most of the organizational institutions are result driven, which means they require certain percentages to be met by a business unit. The institutions are similar per business unit, but every business unit of ARCADIS has their own goal in a set percentage that has to be met.

This thesis did not quantify organizational institutional distance in the employee questionnaire because of the emphasis on formal institutions in the researched literature. Therefore scores regarding organizational institutional distance cannot create aggregated business unit averages to analyze. However, concerns of leading managers representing business units do show that organizational institutional distance is a point of interest in the field of IMIC. Although the IPRI and the Contract enforcement index are reliable sources of institutional distance between countries, these are measures that do exclude certain formal institutions like environmental,

social and economic legislations. As one of the factors that affect IMIC, institutional distance has only been partly researched in this thesis, due to the limited scope and time of this study.

4.3 THE EFFECT OF BARRIERS TO IMIC

4.3.1 SPECIALIZATION

A previous study of ARCADIS (2013) showed that the part of the Environment department had different expertise in different business units. Expertise like noise & air and biodiversity knowledge was not present in every business unit, which could create specialized business units who are not able to absorb different knowledge due to the limited absorptive capacity of that business unit.

Asking leading managers that represent business units about specialization and IMIC resulted in all responding leading managers saying business unit specific practices have an influence on IMIC. Leading managers say that although practices often have a similar name, they still differ a lot between Business units. The difference often had to do with rules and regulations regarding specific practices (in this case environmental law).

Next to different expertise, absorptive capacity could also influence the effect of specialization on IMIC.

Table 4-4 shows that IMIC rankings are not associated to rankings of absorptive capacity (p: .138). Rankings of absorptive capacity differed a lot, and this might be due to the fact that leading managers rather rate their Business units employees high, than low. Giving a low absorptive capacity ranking to your employees might show a certain disability of your BU to other executives of ARCADIS. Scores are still based on the perception of leading managers and questions regarding the absorptive capacity might be seen as threatening if ratings are low. Another explanation might be that questions posed for absorptive capacity were to general and more specific questions pinpointed on specializations within Business units might have given different results. Summarizing, leading managers do think that specialization has an effect on IMIC, but the Spearman's rank correlation test results in no significant association between IMIC and absorptive capacity.

		Absorptive capacity
IMIC	**Correlation**	.503
	Sig.	.138
	N	10
	Bias	-.059
	Std. error	.374
	Lower	-.423
	Upper	.960

Table 4-4 Spearman's rank correlation test between IMIC and Absorptive capacity

4.3.2 BUSINESS UNIT AGE

Questions regarding business unit age are asked in the leading managers questionnaire and in the employee questionnaire. The leading managers questionnaire pointed out that 3 of the business units are part of a recently acquired company by ARCADIS, meaning that the subsidiary was acquired within the last 3 years. The ARCADIS subsidiary (SENES) has business units in Canada, India and the Middle East. Leading managers of all 3-business units pointed out that collaboration between the business units of Canada, India and the Middle East is present, because of the fact that they were already connected before the acquisition. Being part of the same network of interconnected business units apparently has a positive effect on IMIC.

Once the IMIC is compared for the newly acquired business units and other business units a few differences can be seen. Canada and India both acknowledge the fact that they still have to get fully integrated into the network of ARCADIS business units, but they are feeling collaboration ties are getting stronger, according to their response on the open questions of the leading managers questionnaire (Appendix A). The business unit in the Middle East has somewhat more difficulties fitting into the network of business units, mainly because other business units who are already present in the Middle Eastern region. The transition period of 1,5 year (Senes, 2014) shows that preparation of an acquired company needs time and newly acquired companies do not fit into the network of business units immediately. Canada might be the exception to previous statement, since they are ranked second on the amount of IMIC ties. No significant effect can be calculated for business unit age, since there are not many newly acquired firms in this study and a statistical analysis would create unreliable results.

4.4 CONCLUSION EFFECTS ON IMIC AT THE BUSINESS UNIT LEVEL

At the start of this chapter two partial questions were posed regarding the effect of distance and barriers on IMIC on the business unit level. These questions can now be answered for the part with regard to business units.

To what extent are business units of ARCADIS collaborating internationally, according to leading managers representing business units of ARCADIS?

The results of the roster recall method shows that Business units of ARCADIS are collaborating internationally to some extent, but some business units are showing a slight lag in IMIC. Especially Chile, Poland and India are lacking IMIC according to their IMIC rankings (Table 3-6). Chile, Poland and India are rated low on both the rankings for given an received IMIC, which shows that other Business units, but also their own leading managers admit that there is not so much IMIC. Germany is a special case in this analysis. Other business units admit to not collaborating with Germany that often, and Germany itself did not even respond to the different surveys regarding IMIC. Previous explanation might point to a certain absence that Germany is showing in the network of interconnected ARCADIS business units. Sadly, no specific distances or barriers can be appointed to the lack of IMIC in Germany due to the non-response of the BU to the questionnaires.

Which distances and barriers are affecting IMIC within ARCADIS according to leading managers representing Business units and employees, and how?

Distance that affect IMIC on the BU level are now narrowed down to geographic distance and institutional distance. Geographic distance is positively associated to IMIC on the BU level for the Business units Canada and the UK. This positive relation shows that, higher geographic distance is not necessarily negatively related to IMIC on the BU level. The other 8 Business units did not show any association between IMIC and geographic distance. Institutional distance is also associated positively once measured with the International Property Rights Index (IPRI). Although it is a significant positive relation, the IPRI does not include all institutions of a country where ARCADIS business units operate in and therefore poses a certain bias. Due to the fact that organizational institutional distance has not been included in the study, also this part has not been analyzed with regard to IMIC on the BU level.

The hypotheses regarding distance on the business unit can now be tested.

- *High cultural, institutional and geographic distance is negatively associated with IMIC (business unit level)*

  - High cultural distance on the business unit level is not associated with IMIC.

  - High geographic distance on the business unit level is either not associated to geographic distance or positively associated to IMIC for the UK and Canada. This shows that Ghemawat (2001) and Dastidar & Zaheer (2009) were not completely right regarding the negative effect of geographic distance on international collaboration, although their research consisted of inter-multinational collaboration and this study is regarding intra-multinational international collaboration.

  - High institutional distance is negatively associated to IMIC, which coheres with the literature of Kostova & Roth (2002), Boschma (2005) and Knoben & Oerlemans (2006).

Barriers to IMIC, like specialization and business unit age, are not associated to IMIC on the BU level. Specialization measured with absorptive capacity and business unit age did not show any significant relation to IMIC, but leading mangers representing Business units do say specialization is a point of interest, which might influence IMIC. Thereby, leading managers of a recently acquired subsidiary pointed out that after 1,5 years, their Business units are getting integrated in the greater ARCADIS network and are starting to collaborate internationally more often.

The hypotheses regarding the effect of distance on the business unit level can now be tested.

- *High specialization (low absorptive capacity) is negatively associated with IMIC (business unit level)*

  - High specialization is not associated to IMIC, which does not cohere with relevant literature of Szulanski (1996), Minbaeva (2007) and Chang et al. (2012) who said that specialization had a negative effect on collaboration. Again these scholars did not study intra-multinational international collaboration but inter-multinational collaboration and/or knowledge transfer, which might provide a reason for the differences in outcomes.

5 INDIVIDUAL EFFECTS ON IMIC

5.1 IMIC ON THE INDIVIDUAL LEVEL

Next to the leading managers questionnaire, employees have been asked if they often collaborate with international colleagues (e.g. knowledge sharing and/or project collaboration) Figure 4 shows the results of the question regarding IMIC. Once you look at the chart, you can see that 47 % disagrees or strongly disagrees with the statement regarding IMIC. Almost half of the respondents hardly collaborate with international colleagues. The fact that employees hardly collaborate internationally and previous IMIC ties, might point to a very small group of people that fulfill the international projects and knowledge sharing activities.

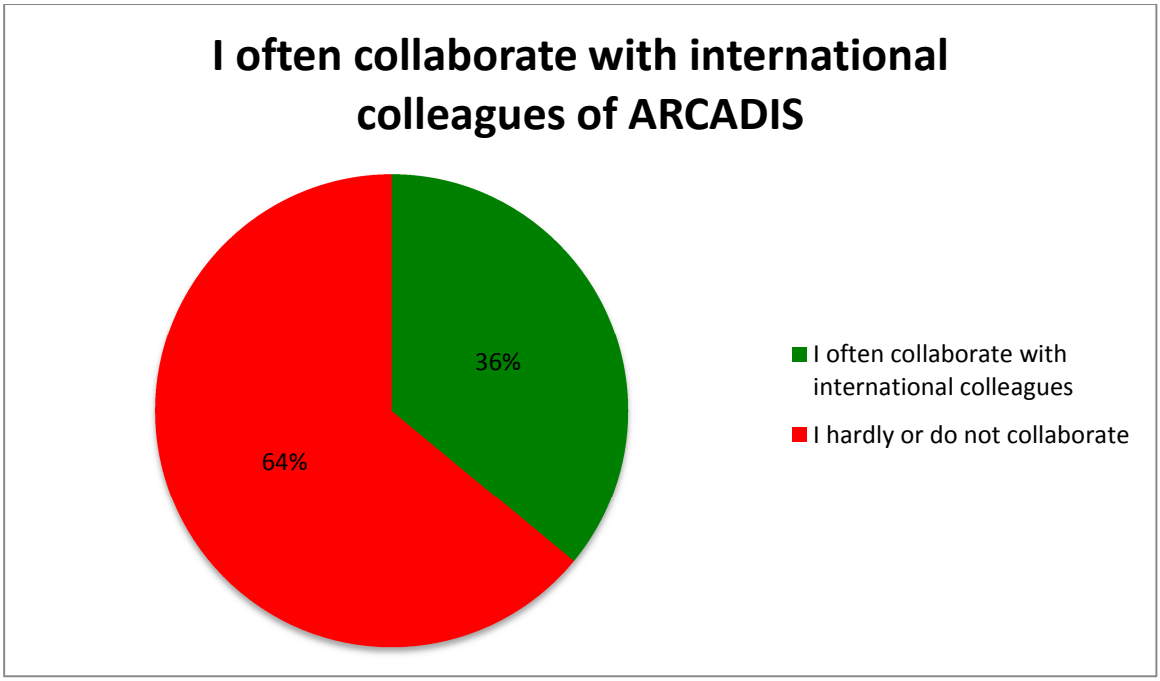

Figure 4 IMIC according to employees (N=167)

This chapter will answer the following partial questions regarding the effect of distance and barriers on IMIC on the individual level:

- *To what extent are employees of ARCADIS collaborating internationally, according to employees of ARCADIS?*
- *Which distances and barriers are affecting IMIC within ARCADIS according to employees of ARCADIS, and how?*
- *Which solutions for reduced collaboration can influence the effect of distance and barriers on IMIC within ARCADIS according to employees?*
- *To what extent can IT leverage or reduce the effect distance and barriers on IMIC within ARCADIS?*

Several factors like willingness & motivation to collaborate, user resistance of technology, social interaction with other international colleagues, cultural dimensions on the individual level and control variables are taken into account in this chapter. The following paragraphs describe outcomes of the employee questionnaire per factor.

5.2 RESULTS OF THE EMPLOYEE QUESTIONNAIRE

5.2.1 WILLINGNESS AND MOTIVATION

Willingness and motivation can be an incentive of or an impediment to IMIC. If employees are willing to share their knowledge and are motivated to seek help once knowledge is absent, collaboration ties will more easily arise (Hansen & Nohria, 2004).

Once employees are asked about their willingness to share knowledge, a clear pattern arises of rather sharing knowledge than keeping it to yourself (92% agrees or strongly agrees compared to 3% that disagrees or strongly disagrees) and rather asking for help than solving problems yourself (79% either disagrees or strongly disagrees to the statement compared to 7% that either agrees or strongly agrees). The results do not necessarily show that knowledge is shared internationally or help is asked outside of their BU, but does show that employees are open for collaboration in general.

Although employees are willing to collaborate, they might not have the opportunity or even worse the possibility to collaborate. Employees were asked if there was enough media to share knowledge on and if there were enough opportunities to work on international projects. In this study knowledge sharing and project collaboration are the building blocks of IMIC and to have IMIC at its full extent, both factors have to be easily executed. Employees do think there are enough media to share knowledge with colleagues (52% either agrees or strongly agrees compared to 18% that either disagrees or strongly disagrees). On the other side, people do not have enough opportunities to work on international projects (57% disagrees or strongly disagrees compared to 22% that either agrees or strongly agrees). If people are asked if they would rather keep their work confined to their own country and the domestic market, 82% either strongly disagreed or disagreed with that statement. Willingness to work in other countries is present within ARCADIS.

If opportunities for IMIC arise for some reason, there still can be a problem regarding identification of expertise (Tsai, 2001) and making use of the expertise that is present within the MNE (Hansen & Nohria, 2004; Tsai, 2001). Employees were asked if it is hard to identify knowledge that is present within ARCADIS and if it is hard to make use of expertise possessed by international colleagues at ARCADIS. The majority of the employees at ARCADIS think that knowledge is hard to identify (55% agrees compared to 20% that disagrees) and employees find it hard to make use of expertise that is possessed by international colleagues within ARCADIS (54% agrees compared to 19% that disagrees).

5.2.2 USER RESISTANCE OF TECHNOLOGY

Employees of a MNE can resist using the technology that is present for reasons like difficulty of use or finding the designated technology not useful (Kim & Kankanhalli, 2009; Ardichvilli et al., 2006). If data regarding technological use is inspected, the employee's opinion of the IT that is present within ARCADIS becomes visible.

According to employees of the ARCADIS, IT is not necessarily easy to use, but a large amount of the answers is in the category 'Neutral' (39%). Part of this result can be assigned to the fact that ARCADIS has a very large IT infrastructure. Employees might have difficulties with one part of the IT infrastructure, while easily using another part. Still, 38% noted that IT used for sharing knowledge and collaborating on projects is not easy to use, while 23% of the employees was positive about the ease of IT usage.

Ambos & Ambos (2009) and Mithas et al. (2012) already pointed out that IT can be very useful for collaboration, crossing large distances and sharing codified knowledge, and apparently employees of the ARCADIS agree with those statements. 70% of the respondents agreed or strongly agreed to the statement that virtual collaboration (collaborating by using IT tools) is useful for project collaboration and knowledge sharing. 30% of the respondents either disagreed or strongly disagreed on the statement regarding virtual collaboration.

To test whether employees are embracing newly implemented technologies for collaboration (opposed to resisting new technology), employees are asked if they are often collaborating through the newly implemented enterprise social network called 'Yammer'. On Yammer, employees are able to request specific knowledge, share knowledge and identify knowledge that is present within ARCADIS.

Sadly, Yammer (implemented 1 year ago) is not often used, according to the data. Only 18% of the respondents frequently use Yammer, while 82% does not make use of Yammer that often or even never uses Yammer. User resistance could not be assigned to specific employees of certain Business units, but it does show that new technologies are not always adopted as fast, or at all, as one might think.

The results show that employees do find virtual collaboration useful, but are not inclined to adopting new information technologies Literature posing that information technology can help in the process of increasing international collaboration (Ambos & Ambos, 2009; Tanriverdi, 2005; Mithas et al. 2012) might be correct, but employees still have to be open for information technology that is implemented for collaboration. That is currently not the case within ARCADIS.

5.2.3 SOCIAL INTERACTION

According to the literature previous contact and face-to-face contact increases trust and collaboration (Storper & Venables, 2004; Breschi & Lissoni, 2003; Noorderhaven & Harzing, 2009; Zakaria et al., 2004). Employees of the ARCADIS were asked if previous contact stimulated future contact with these colleagues. The results of the employee questionnaire point out that respondents think that previous contact with colleagues stimulates future collaboration with those colleagues (80%).

5.2.4 CULTURAL DISTANCE ON THE INDIVIDUAL LEVEL

As previously discussed in paragraph 2.3.2, cultural distance is aggregated to BU level, to compare different countries on cultural distance and the association with IMIC. To see if cultural distance has an effect on IMIC, it is also taken into account on the individual level. Every cultural dimension has been implemented in the logistic regression, to show whether PD, UA, MF and IC have a significant influence on IMIC on the individual level.

5.3 ANALYZING RESULTS

Analysis in this chapter is done using logistic regression analyses with IMIC on the individual level as the dependent factor. Before the logistic regression analysis has been computed, factors have been tested for multicollinearity. None of the added factors had a value above .800 for collinearity with other factors as shown in Appendix C. Table 5-1 and Table 5-2 show the results of the logistic regressions that have been made for the individual factors that influence IMIC.

In the logistic regression is strived for parsimony, meaning factors are excluded that hardly have an effect on the model. Barriers and distance that are strongly non-significant are stepwise excluded from the logistic regression model. Looking at the Pearson's coefficient, non-significant factors are excluded until the Pearson's coefficient is not decreasing any more (but is increasing). In the end the stepwise excluding of factors results in a few factors that are still included in the logistic regression, which can be analyzed on significance and either positive or negative influence on IMIC.

During the process of excluding factors 'degree of foreignness' had a very high 'Odds ratio' which can point out to an error in the analysis, once data is scarce for that variable. The variable can point to a significant relationship while actually being insignificant (Bryman, 2012). Although degree of foreignness is significant in the first step, it has been excluded due to the scarce lack of diversion in the answers (only 4 people admitted feeling foreign in the

country where they work in), to previous explanation regarding the error in 'Odds ratio' and due to the fact that the reliability of the logistic regression increased (lower pearson's chi square value) after excluding this variable.

Logistic Regression Step 1				
Factor	**S.E.**	**Wald**	**Significance**	**Exp. (B)**
Willingness and motivation				
Identify knowledge	.331	.003	.958	.983
Ability to leverage knowledge	**.337**	**7.987**	**.005*** **	**.386**
Solve problems yourself	.310	.087	.767	1.096
Share knowledge	.355	.582	.446	.763
Preference to work in the Domestic market	**.346**	**2.145**	**.143**	**.602**
User resistance				
IT is easy to use	.299	1.986	.159	.656
Virtual collaboration	.335	.051	.821	.927
Yammer	.664	.538	.463	1.628
Cultural distance				
Power distance	**.617**	**2.808**	**.094***	**.356**
Uncertainty avoidance	.466	.527	.468	1.403
Masculinity	.464	.024	.876	.930
Collectivism	.510	.900	.343	1.622
Language	.254	.243	.622	1.133
Other factors				
Social interaction	.342	.054	.816	1.083
Foreignness	1.580	8.384	.004***	97.060
Male	**.576**	**5.548**	**.018****	**.258**
Age	.273	.449	.503	.833
Acquisition	.627	.128	.721	.799
Time employed	.228	1.164	.281	1.279
Constant	4.084	1.227	.268	92.115
		N=167	Chi-square: 62.075	Log-likelihood: 112.424

Table 5-1 Logistic regression results step 1*p< 0.1, **p<0.05, ***p<0.01

Logistic Regression Step 2				
Factor	**S.E.**	**Wald**	**Significance**	**Exp. (B)**
Willingness and motivation				
Ability to leverage knowledge	**.237**	**11.659**	**.001*** **	**.445**
Share knowledge	.267	.448	.503	.836
Preference to work in the Domestic market	**.281**	**6.041**	**.014** **	**.502**
User resistance				
IT is easy to use	.209	2.247	.134	.731
Yammer	.549	.482	.488	1.464
Cultural distance				
Power distance	**.503**	**4.984**	**.026** **	**.325**
Uncertainty avoidance	.397	1.758	.185	1.693
Collectivism	.387	.009	.926	.965
Other factors				
Male	**.464**	**4.905**	**.027** **	**.358**
Time employed	.183	1.870	.172	1.284
Constant	2.951	2.828	.093*	142.867
		N=167	Chi-square: 44.974	Log-likelihood: 141.840

Table 5-2 Logistic regression results step 2 *p< 0.1, **p<0.05, ***p<0.01

5.3.1 WILLINGNESS AND MOTIVATION

As table 5-1 and 5-2 show, the ability to leverage (make use of) the knowledge of international colleagues significantly affects IMIC. Employees were asked if they found it hard to make use of knowledge possessed by international colleagues of ARCADIS. When employees find it harder to leverage international knowledge, the odds of IMIC are getting lower according to the 'Odds-ratio' (Exp.B) that is below 1. The same explanation accounts for results regarding the 'I rather keep my work confined to my own country and the domestic market' statement. When employees are not willing to work abroad, and rather keep work confined to the domestic market, the odds of IMIC are getting lower. Hansen & Nohria (2004) explained in their empirical research that factors that lower motivation of employees (like the ability to leverage knowledge) and willingness (like willingness to work abroad) do

negatively affect international collaboration. Also for ARCADIS, results show that lower willingness and motivation have a negative effect on IMIC.

5.3.2 USER RESISTANCE OF TECHNOLOGY

The logistic regression analysis, which can be found in Table 5-1 and Table 5-2, does not point out any significant factors for user resistance of technology. Apparently, finding IT hard to use, finding virtual collaboration useful for collaboration and using Yammer as a way to connect with international colleagues does not influence the chances of IMIC. Literature shows that IT can help out on international collaboration (Ambos & Ambos, 2009; Tanriverdi, 2005; Mithas et al. 2012), but in this empirical study none of the factors regarding user resistance of technology affect IMIC. To make IT work with regard to international collaboration, user resistance first has to be overcome.

There was no question that asked why information technology was hard to use or why information technology was useful, but answers to the open questions in the employee questionnaire provided answers of 10 people (NL, Chile, USA) explaining why people have difficulties with technology that is used to collaborate internationally (Appendix D). They noted that there is a lack of knowledge regarding collaborative technologies and that there are too many tools currently present, which makes it hard to choose and know which one is actually useful and used by many people. According to those 10 employees there is no need for more technology; just more attention needs to be paid to the use of these technologies.

5.3.3 SOCIAL INTERACTION

Results of the logistic regression analysis (Table 5-1) show that social interaction has no significant effect of increasing the chances of IMIC. On the one hand the statement regarding social interaction is positive, employees might think that social interaction helps, but on the other hand, 57% of the employees think there are to few opportunities to work on international projects and 56% of the employees think it is hard to identify knowledge within ARCADIS. Social interaction therefore might not have a relevant effect on IMIC, although further research still has to prove this.

5.3.4 CULTURAL DISTANCE ON THE INDIVIDUAL LEVEL

Table 5-1 and Table 5-2 show the 4 cultural dimensions that are included in the logistic regression analysis. Masculinity is excluded at the second step, since that cultural dimension was already highly insignificant in the first step of the analysis.

Table 5-2 shows that power distance is significant in both step 1 and 2 of the logistic regression analysis. Collectivism is highly insignificant in step 2. Table 5-2 shows that higher power distance reduces the chance on IMIC (Exp.B: .303), and therefore high power distance has a negative effect on IMIC. This is in line with the literature of Lucas (2006) and Möller & Svahn (2004), saying that smaller PD increases cross-organizational and international collaboration, while high PD increases collaboration with factor in close vicinity, but has a negative effect on international collaboration. Employees that are working in an environment

that is less hierarchical, meaning relations between management and employees are less tense and strict, are more inclined to IMIC.

LANGUAGE

In the employee questionnaire employees are also asked if they think their English is of a sufficient level for international collaboration.

As described in paragraph 4.2.2, leading managers think that some of their employees have a lacking English proficiency, employees who filled out the questionnaire think that their level of English is sufficient for international projects. Only 19 people think that their English is not sufficient for working on international projects. Once the language factor is implemented in the logistic regression analysis on the individual level, it does not show any significant effect on IMIC.

When employees are asked what they thought were factors that affect IMIC, 21% responded that culture and mainly language is of influence on IMIC (Appendix D). Ambos & Ambos (2009), Zaheer et al. (2012) and Lucas (2006) described that language has an effect on international collaboration, but in this thesis, language does not have a significant effect on IMIC.

5.3.5 CONTROL FACTORS

The logistic regression analysis also included some control factors, namely gender, age, time employed and degree of foreignness. Of previous four control factors only males have a significant positive effect on increasing the chance of IMIC happening. 55% of the respondents were male, and 45% of the respondents were female.

Table 5-2 shows that male has an odds ratio of .358 meaning being male (0 is rated male and 1 is rated female in the questionnaire) increases the chance of IMIC. Morris et al. (2006) and Wang et al. (2009) pointed out that gender did not have an effect on technological adaptation and virtual collaboration. Although previous two aspects are part of this thesis, it is not actually studied. This thesis shows that within ARCADIS males have a positive effect on IMIC.

5.4 SERENDIPITY! ORGANIZATIONAL INSTITUTIONAL DISTANCE ON THE INDIVIDUAL LEVEL

Organizational institutional distance is not covered in the employee questionnaire, but answers to the open questions in the employee questionnaire, showed that employees see organizational institutional distance as an impediment to IMIC. Therefore this specific institutional distance is also covered on the individual level.

While the leading managers mainly mentioned billability and international hourly rates differences as a barrier to IMIC, the respondents of the employee questionnaire had a more mixed opinion (Figure 5). 32% of the employees mentioned administrative and accounting procedures as a barrier to IMIC. Most often employees said that procedures regarding approval of international projects are slow. Thereby, different tax rates, arranging working visas, currency conversions and contracting problems all slowed down the process of international projects. Because of institutions that slow down the process of international projects, employees said that they get demotivated to start working on international projects.

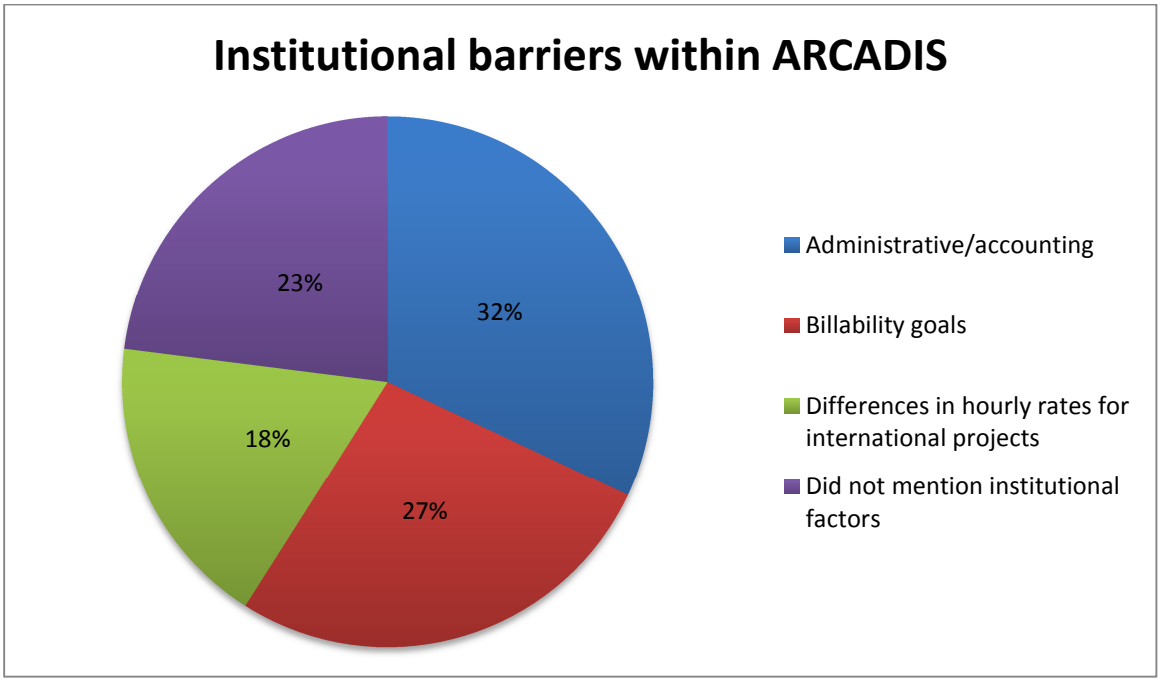

Figure 5 Institutional distance within ARCADIS according to employees (143 of 167 responded)

Another barrier (mentioned by 27 % of the employees that answered the open question) that falls under organizational institutional distance is the billability of different ARCADIS Business units. Executive management of every BU has certain goals that have to be met, regarding revenue and profitability. These goals are translated into a set percentage of hours and revenue that have to be met per employee. Because international projects often carry additional cost (working across different Business units, one BU has to take the lead) and one of the Business units has to be responsible for the project (e.g. baring all the risks), billability and revenue are often less than for domestic projects. Employees mentioned that working on domestic projects will keep you on schedule for your billability and therefore, working on

international projects is de-motivated. This could be a reason for reduced IMIC. Goals that are set by executive management actually create barriers for employees to work on the international level, because of a set of rules and regulations regarding billability.

The last factor that is mentioned by employees is international hourly rates. Working on international projects often requires a set of people from different Business units. Every BU has their own hourly rates, but these rates differ relatively. For example, if work has to be done in South – America (where rates are lower) and people from the USA and the Netherlands (where rates are higher) have to work together with people of Chile, rate differences come into play. To get hired by the client you will need to set a profitable price, but with relatively expensive rates of the USA and the Netherlands compared to Chile, international collaboration could be a de-motivating factor in proposing for a project. Without international experience, expertise might be missing for the projects, but if you would include that international experience, prices are too high.

Organizational institutional distance is not implemented in the employee survey, but because open questions created room for employees to express their concerns, employees did pose organizational institutional distance as a threat to IMIC. No significant effect can be derived from this data, but further research might be able to prove that organizational institutional distance has a significant effect on IMIC.

5.5 POSSIBLE SOLUTIONS FOR THE EFFECT OF DISTANCE AND BARRIERS TO IMIC ACCORDING TO EMPLOYEES

In the employee questionnaire, employees were explicitly asked to propose possible solutions for effects of distances and barriers to IMIC (Table 5-3). Answers to the open questions regarding solutions to reduced IMIC have been fitted to certain categories. These solutions are shortly explained in the following paragraphs.

STIMULATING AND RECOGNIZING INTERNATIONAL EFFORTS

The most often mentioned solution (by 20% of the employees) is one regarding stimulation and recognition. Employees say that because of separate goals regarding billability and profitability, executive management per business unit is pursuing these goals separately. International projects often carry extra costs and need more effort, because of a distributed workforce, risk baring, mixed cultures and financial differences between business units. The chance of failure is bigger and failure would mean a risk of not making your goals. According to employees executive management is therefore a bit careful in taking on big international projects and do not necessarily stimulate these kinds of projects. To increase IMIC and especially the point of international project collaboration, employees think that executive management of business units should stimulate international projects among their employees and the overall ARCADIS executive management should recognize business units for pursuing international projects. This way a project won't be a possible risk of not reaching your goals, but a chance to get recognized for what has been achieved.

UNDERSTANDING AND UNIFORMITY OF INFORMATION TECHNOLOGY

18% of the respondents to the employee questionnaire said that IT is useful for virtual collaboration, but not always easy to use. Identifying knowledge also is a significant factor of influence on IMIC and especially identifying knowledge can be made easier through tools as enterprise social networks as mentioned by Alberghini et al. (2013). To better identify knowledge within the network of ARCADIS employees, a better understanding of the IT infrastructure is needed according to the employees. Employees also mentioned that not all business units had the same set of tools and IT at their exposure, which creates problems when collaboration is initiated through certain tools, but not everybody, is able to use these tools. Conformity of IT and tools is needed according to employees to increase virtual collaboration. Thereby training in the several IT facilities might increase the amount of people using the IT infrastructure and creates awareness of different functionalities.

UNIFORMITY IN GLOBAL PROCEDURES

Other solutions mentioned could be categorized under global procedures. 17% of the employees mentioned there is a need to create conformity between the different business units regarding hourly rates regarding international projects, agreements for the movement of people across business units, quicker procedures regarding international projects and a global policy for ARCADIS. Although creating uniformity in procedures between the different business units can be a very difficult task, employees do think something needs to be done regarding procedures and international hourly rates to increase IMIC.

ORGANIZING MORE SOCIAL EVENTS

14% of the employees think that social events might increase IMIC. Contact can be made through IT tools, but employees think that actual face-to-face interaction through social events creates trust and increases collaboration. Having face-to-face contact also creates the opportunity to exchange valuable (tacit) knowledge and creates awareness of knowledge that is present within ARCADIS as a whole. Employees mention that there are social events where international colleagues meet to get acquainted and exchange knowledge, but these social events often have restrictions regarding seniority (mainly for high level management positions) or the opposite meaning it is just for juniors. A large group of employees therefore gets excluded from social events. Social events without entry restrictions would be an incentive to share knowledge, strengthen ties between business units and increase IMIC. The solution brought by the employees is in coherence with the ideas of Chang et al. (2012) and Argote & Ingram (2000) that said to increase collaboration and knowledge sharing (especially tacit knowledge) you will need to bring knowledge to places where it is needed, by connecting employees face-to-face through social events.

TRAINING ON INTERNATIONAL PROJECTS MANAGEMENT

In the paragraph on stimulation and recognition, goals of executive management were mentioned regarding the pursuit of international projects. Mainly because international projects are more difficult to manage, executive management rather pursues projects on the domestic market. 11% of the employees think that once business units facilitate training for large international projects, the risk of failure is reduced and executive management might tend to pursue more international projects. Of course this solution needs to go hand in hand with other solutions to increase the feasibility of this training.

MANAGERS FROM DIFFERENT CULTURES IN EVERY BUSINESS UNIT

The last solution mentioned by 8 % of the employees, which supposedly could reduce cultural distance between different business units are international managers. Employees said that experienced managers in a business unit know the working environment in their country. They know how to respond to certain situations and know how to handle the culture that is present in that country. If you would either mix managers of different countries in every BU or distribute managers with a lot of international experience across the different business units cultural distance might be reduced. These managers can be your first point of contact for doing business with other business units and can advise you on subjects regarding IMIC. Hansen & Nohria (2004) and Minbaeva (2004) emphasize the importance of international managers to bridge cultural distance and to stimulate international collaboration.

STIMULATE ENGLISH IN THE WORKING ENVIRONMENT

6 % of the employees (all based in South America) think that English should be stimulated. South American employees mentioned that in particular business units where English is not of a sufficient level; English should be practiced in the working environment. Some employees also pointed out that help from international colleagues (if they for example are in Chile or Brazil for an international project) could improve their English skills. Since English is the main language for international projects and international social interaction, stimulating

English practice in business units where the level of English is not sufficient, might indirectly increase IMIC. Employees said that an improved level of English gives people more confidence to start a conversation, share their knowledge and ask for help.

SUPPORT GROUPS FOR INTERNATIONAL PROJECT OPPORTUNITIES

As an addition to the training on international project management, 6 % of the employees mentioned support groups. Since setting up an international team of professionals and creating the framework for an actual project on international scale is laborious and requires knowledge of several business units and expertise present in those business units, employees proposed support groups. These groups are standby for international opportunities and can immediately pursue such projects. Having the support groups standby means that the initial first step of offering your service to the client takes less time and effort, which also reduces extra costs and loss of efficiency. Since reduced efficiency, time loss and extra costs are all inhibitors of reaching executive goals, reducing the chance on these factors will stimulate employees and management to pursue international projects.

Solutions to distance and barrier according to employees of ARCADIS			
Solution	**Score**	**%**	**Description**
Stimulating and recognizing international efforts	30	20	International goals instead of operation community goals, recognition for international efforts, stimulation of international projects by operation community management.
Understanding and uniformity of information technology	27	18	Better understanding of IT-infrastructure, global conformity in IT, training in IT facilities, better expertise finder.
Uniformity in global procedures	25	17	International equal rates, international agreement for the movement of people, quicken procedures, ONE ARCADIS Policy.
Organizing more social events	20	14	More face-to-face interaction events without constraints regarding age/seniority etc.
Training international project management	16	11	Training in large international project management, non-billable practice, training in collaboration tools.
Managers from different cultures in every business unit	12	8	Mix managers from different operation communities in departments with the same expertise, increase cultural awareness by mixing management positions.
Stimulate English as main language in the working environment	9	6	Stimulate English practice in non-English working environments and create where needed English courses.
Support groups for international project opportunities	9	6	Create support groups that are accessible for international proposals, support groups that are ready to travel, support groups that are globally billable.
Number of different responses to the open question regarding solutions to reduce IMIC	148	100	
N=167 (response rate 89%)			

Table 5-3 Solutions to distance and barriers according to employees

5.6 CONCLUSION EFFECT ON IMIC AT THE INDIVIDUAL LEVEL

After all previous paragraphs, the partial questions that are posed at the start of this chapter can now be answered starting with:

To what extent are business units of ARCADIS collaborating internationally, according to leading managers representing Business units and employees of ARCADIS?

Employees are collaborating to some extent, although a large part (47%) is saying they are not often collaborating with international colleagues. 36% does say they are often collaborating with international colleagues. To explain current IMIC within ARCADIS, several factors have been tested on their effect on IMIC, which gives the opportunity to answer the second partial question:

Which distances and barriers are affecting IMIC within ARCADIS according to employees of ARCADIS, and how?

Certain individual factors do influence IMIC. Paragraph 5.2.1 shows that employees of ARCADIS are willing and motivated to collaborate, but they are not sure how to leverage (make use of) the knowledge that is present within the company. Thereby, few employees are willing to work abroad. Most of the employees rather focus on the domestic market instead of pursuing international projects, most likely because of their families. Both factors regarding willingness and motivation have a significant negative effect on IMIC. Thereby, high power distance has a significant negative effect on IMIC, showing that strong hierarchical environments are negatively influencing IMIC. Finally, males have a positive effect on IMIC in contrast to females. The following hypotheses can now be tested for individual factors.

1. *Employees that interact socially with colleagues are more inclined to IMIC than employees that are not socially interacting with colleagues (individual level)*

   Employees that interact socially with international colleagues are not more inclined to IMIC, than employees that are not socially interacting.

2. *Employees that use available technology to collaborate with international colleagues are more inclined to IMIC than employees that resists technology to collaborate with other international colleagues (individual level)*

   Employees that use available technology to collaborate with international colleagues are not more inclined to IMIC than employees that resist technology to collaborate with international colleagues.

3. *Employees that are willing to share knowledge with other international colleagues and are motivated to help other international colleagues are more inclined to IMIC*

than employees that do not want to share knowledge and do not want to help other colleagues (individual level)

Employees that are willing to share knowledge with other international colleagues and are motivated to help other international colleagues are not more inclined to IMIC than employees that do not want to share knowledge and do not want to help other colleagues.

The hypotheses show that none of the posed hypotheses is accepted and therefore literature did not cohere with this empirical study. Reasons for non-coherence are the point that intra-multinational international collaboration is not studied in any of the literature and most of the time inter-multinational collaboration or international knowledge transfer is studied. These are similar subjects, but never completely the same.

To find out if employees might have explicit ideas to overcome reduce IMIC, the following partial question is answered.

Which solutions for reduced collaboration can influence the effect of distance and barriers on IMIC within ARCADIS according to employees?

The most often mentioned solution to the effect of distance and barriers on IMIC according to employees is stimulation and recognition by the management of ARCADIS business units. Employees think that current management is not stimulating employees to pursue big international projects. Often these projects come with large responsibility and a certain risk for the pursuing BU. Therefore; management rather pursues domestic projects according to employees. Promoting stimulation and recognition is in accordance with literature of Hansen & Nohria (2004) that pointed out that management should stimulate international collaboration among employees to increase their competitive advantage in the long run.

The second most often mentioned solution for reduced collaboration is to increase the understanding of the current IT infrastructure within ARCADIS. Employees pointed out that they find collaborative IT is not that easy to use. Employees need more training in the tools that can increase IMIC, to actually start working with international colleagues more often. Until now employees said that it is not clear what IT infrastructure is available with regard to collaboration. Ambos & Ambos (2009), Tanriverdi (2005) and Mithas et al. (2012) pointed out that IT can help increase international collaboration, but is not the sole solution to problems regarding international collaboration. Employees might perceive lagging IT as an impediment to IMIC, but in the end, increasing IT infrastructure only partly increases IMIC.

The third most often mentioned solution for reduced collaboration is global procedures. Employees pointed out that internationally differing hourly rates are a big inhibitor of IMIC. Some rates are simply too expensive for other Business units of ARCADIS to make a profitable offer to clients. Thereby, goals with regard to billability and profitability make it hard for employees to pursue big international projects, since these projects often require a sharp offer, which might not be as profitable as the domestic projects. Other solutions have

been put forward, but employees of ARCADIS mentioned previous three solutions most often.

To what extent can IT leverage or reduce the effect distance and barriers on IMIC within ARCADIS?

The paragraph on user resistance of technology shows, that employees of ARCADIS do think that a better understanding of the current IT infrastructure can increase IMIC. Although employees have this perception, previous attempts to connect employees with international colleagues with enterprise social networks (like Yammer) are still not entirely adopted by the employees of ARCADIS. Thereby, Kim & Kankanhalli (2009) and Ambos & Ambos (2009) pointed out that IT can support people in collaboration, but it is no complete solution to problems regarding international collaboration and knowledge sharing. Therefore IT can support employees of ARCADIS in their collaboration and knowledge sharing activities, but will not completely reduce the hampering collaboration.

6 CONCLUSION

Previous chapters show that Intra-Multinational International Collaboration (IMIC) has many factors that might influence it's success. Different units of analysis have to be taken into account and even then some parts come short in explaining effects on IMIC. At the beginning of this thesis the following main question was posed:

To what extent do distance and other barriers affect intra-multinational international collaboration of ARCADIS, how and why; and how can distance and barriers be overcome?

To answer the main question, partial questions have been formulated to give a proper insight into IMIC.

The first partial question '*What are the incentives for IMIC, according to the literature?'* has been answered in the theoretical framework. Incentives for IMIC are important for this thesis, but firstly the origin of IMIC had to be studied. The theoretical framework showed that Buckely & Casson (1976) were the first scholars to conduct an elaborate study on the multinational enterprise (MNE), showing that multinational enterprises have a large network of interconnected firms. Although these firms were connected in some way, they still noted difficulties in sharing knowledge across borders and across large distances. Szulanski (1996) later showed that barriers to international collaboration exist and they have to be addressed, in order to make international collaboration successful. Buckley & Casson (1976) and Szulanski (1996) can be seen as the founders of literature regarding IMIC and distances and barriers that affect IMIC. They tried to understand they way in which multinational enterprises act across the globe, and what kind of pitfalls multinational enterprises had to deal with, before success could be granted. Buckley & Casson (1976) and Szulanski (1996) pointed out that by linking global knowledge and operations, a multinational enterprise could beat competitors not by sheer scale and size, but by efficient knowledge management. Previous statement was later embraced by Hansen & Nohria (2004).

But to completely understand IMIC, you need to know what the incentives for IMIC are. Boschma (2005) and Knoben & Oerlemans (2006) combined different proximities that were of influence on inter-organizational collaboration. Although IMIC not exactly the same as inter-organizational collaboration, Knoben & Oerlemans (2006) pointed out that incentives for inter-organizational collaboration could also be used for IMIC. Incentives for IMIC therefore were cultural proximity, institutional proximity and geographic proximity, but instead of proximities, distances were taken in this study, in order to link up to other literature (Lucas, 2006; Kostova & Roth, 2002; Ghemawat, Beugelsdijk & Mudambi, 2013; Ambos & Ambos, 2009). Distance is in previous literature regarding international collaboration the exact opposite of proximity; whereas distance tries to show that there might be a negative effect, and proximity try to prove a possible positive effect of vicinity on collaboration.

Besides the incentives for IMIC, other literature has been analysed to see whether there are more barriers to IMIC, than the previously assigned geographic, cultural and institutional

distance (Hansen & Nohria, 2004; Minbaeva, 2007; Chang et al. 2012; Storper & Venables; Bauer & Matzler, 2014; Kim & Kankanhalli, 2009). The question *'Which distances and other barriers can theoretically have a positive or negative effect on IMIC?'* can be answered after extensive literature reviews. Literature showed that high cultural distance, institutional distance, geographic distance, specialization and low business unit age could have a negative effect on the business unit level of IMIC, while high user resistance of technology, low social interaction, low willingness and motivation and again high cultural distance could have a negative effect on IMIC on the individual level. On the business unit level distances and barriers affect the whole business unit (e.g. several employees); whereas on the individual level, factors only affect one individual and might not have the same effect on a business unit as a whole.

To actually empirically study the different distances and barriers to IMIC, ARCADIS has been researched on IMIC. The second question *'To what extent are business units of ARCADIS collaborating internationally, according to leading managers and employees of ARCADIS?'* was therefore raised. To empirically study IMIC in a multinational enterprise like ARCADIS, the empirical research was divided in two different units of analysis, namely the business unit level and the individual level. The results at the business unit level show that there is a divide between the amounts of IMIC ties in every business unit according to leading managers. Business units like the UK, Canada and the Netherlands do have a lot of IMIC ties (respectively 7, 7 and 6 ties prove IMIC), but business units like Chile and India and the Middle Eastern region do not have that many IMIC ties (respectively 1, 4 and 1 ties that prove IMIC). There are therefore factors that influence the extent of IMIC between the different business units of ARCADIS.

On the individual level, employees were asked to fill out a questionnaire. The questionnaire posed many statements. IMIC was derived from answers to the statement *'I often collaborate with international colleagues of ARCADIS'*. 36% of the employees agreed to this statement, while 47% disagreed. Research at the business units level showed that not every business unit is collaborating that often with other business units within ARCADIS, and on the individual level, results show that it is the same on the individual level. Less than half of the responding employees often collaborate with other international colleagues of ARCADIS.

To find the underlying causes that influence IMIC, the following question is asked '*Which distances and barriers are affecting IMIC within ARCADIS, according to leading managers and employees, and how?'* On the business unit level geographic, cultural and institutional distances have been studied on their effect on IMIC. Besides geographic, cultural and institutional distances, barriers like specialization and business unit age have also been studied for their effect on IMIC at the business unit level. Questionnaires filled out by leading managers provide data to represent the different business units of ARCADIS.

On the business unit level geographic distance is only positively associated to IMIC of the business units in the UK and Canada. A larger geographic distance is positively associated to IMIC in the UK and Canada, showing that a larger or smaller geographic distance between

business units does not negatively relates to IMIC in these business units. Cultural distance did not have any association with IMIC on the business unit level. Cultural distance is the difference between certain cultures that can pose a threat to IMIC. Institutional distances, which are the differences in institutional frameworks of countries where ARCADIS business units operate in, is associated with IMIC for the 5 selected business units Brazil, Belgium, Canada, Chile and The Netherlands. The results show that a high ranking on the International Property Rights Index (IPRI), has a positive relation with IMIC in comparison to a low ranking, which has a negative relation to IMIC. Having more property rights, which is associated to a stricter more solid institutional system relates positively to IMIC (Frances, 2004; Rodrik, 2003). According to Frances (2004) and Rodrik (2003) the international property rights index is a reliable source of the formal regulations in a country and therefore this thesis concludes that high institutional distance is negatively associated with IMIC.

The barriers to IMIC on the business unit level are both of no influence on in this empirical research. Specialization (measured by absorptive capacity) has no association with IMIC and business unit age is no reliable, due to limited mergers and acquisitions. Leading managers of Canada and India do say they increasingly start to get connected to the network of ARCADIS business units, but that it still needs some time. Further research on this topic might show a significant relation of business unit age with IMIC.

On the individual level of this empirical study, several factors have been analysed on statistical significance, namely cultural distance, willingness and motivation, user resistance of technology, social interaction, degree of foreignness, gender, age, degree of foreignness and time employed. Willingness and motivation of employees consisted of a combination of factors. Willingness to work abroad is a factor that significantly influences IMIC negatively. Employees that rather keep their work confined to the domestic market and their own country have a negative effect on IMIC. Thereby, the perceived difficulty to leverage the knowledge of international colleagues has a significant negative effect on IMIC. This disability in leveraging knowledge of ARCADIS employees might be a de-motivator of IMIC at the individual level, although exact information regarding willingness to work abroad and ability to leverage knowledge has yet to be shown.

Cultural distance on the individual level, which is based on the four cultural dimensions of Hofstede (power distance, uncertainty avoidance, masculinity and collectivism) in comparison to cultural distance on the business unit level, does have an effect on IMIC. High power distance has a negative effect on IMIC. The negative effect of high power distance on international collaboration was already predicted by Lucas (2006) and Möller & Svahn (2004), but they did not study the effect on IMIC. Having a more hierarchical atmosphere in your business unit, apparently de-motivates employees to work outside of their close environment and therefore affects IMIC in a negative way, as mentioned by Lucas (2006).

The last factor in this empirical research that is of influence on IMIC at the individual level is gender. According to this thesis males have a positive effect on IMIC. Previous research never related gender to international collaboration, although research did predict that feminine

cultures might be more open to collaboration than masculine societies (Lucas, 2006; Phene et al. 2005). This thesis shows that the culture of ARCADIS employees is predominantly feminine and therefore males might act in a more collaborative way that supports compromises instead of individualistic, result driven behaviour (Lucas, 2006; Möller & Svahn, 2004).

The other factors social interaction, user resistance, degree of foreignness and age do either not have a significant effect on IMIC or in the case of degree of foreignness are not fit for analysis. Social interaction might not influence IMIC in this empirical research, since the statement is posed kind of obvious. 'Previous contact with international colleagues increases future collaboration with international colleagues' does not cover the load of social interaction completely. A more fitting question would have been to ask if they have had contact with international colleagues and if that contact increased their collaboration with those colleagues. Now the question is less informative and might not show the true effect of social interaction on IMIC.

User resistance had a similar problem with questions that might be posed to commonly, not specifying on tools for collaboration, but just asking the broader question regarding 'information technology'. Future research could specify questions regarding organizational information technology, by actually pointing out software and tools to rate on usefulness and ease of use. Degree of foreignness could not be used due to the limited data set.

During the empirical research answers on the open questions in the employee questionnaire provided a different perspective of a possible effect of organizational institutional distance on IMIC. On the individual level, employees pointed out that rules and regulations around billability, international hourly rates and extensive procedures for international projects reduced the efficiency and motivation to pursue international projects. The effect of organizational institutional distance could not be taken into account in this research, because the framework is based on literature that mostly addressed formal institutional distance instead of organizational institutional distance. After reading the answers to the open questions in the employee questionnaire, organizational institutional distance does seem to be a relevant factor in research regarding IMIC. Future studies might provide more detailed information regarding the effect of organizational institutional distance on IMIC.

Finally the partial research questions '*Which solutions for collaboration can influence the effect of distance and barriers on IMIC within ARCADIS according to employees?'* and *'To what extent can information technology leverage or reduce the effect distance and barriers on IMIC within ARCADIS?'* were posed to highlight ways to reduce the negative effects of distances and barriers and increase IMIC. Literature (Kim & Kankanhalli, 2009; Ambos & Ambos, 2009; Mithas et al. 2012; Tanriverdi, 2005) proposed information technology as a good source of increasing international collaboration within multinational enterprises. Thereby changes in management (motivate employees and recognizing efforts) and introducing international managers (of different cultures) into your working environment might help international collaboration thrive (Alberghine et al. 2013; Bughin 2007; Ambos &

Ambos 2009; Tanriverdi 2005). Employees do agree with previously stated scholars, saying that increased usage and understanding of information technology (mentioned by 22% of the employees) can increase IMIC, as well as introducing international managers (mentioned by 10% of the employees). Thereby employees think that management should stimulate and recognize business units or employees that pursue international projects and try to work with international colleagues (mentioned by 24% of the employees). Employees see support and training for working on international projects as an additional advantage. A solution for regarding global procedures is much wanted by employees, reducing procedural time and levelling out international hourly rates. Although global procedures do sound like a good idea, different institutions and economic climates make it hard for multinational enterprises to fulfil this wish.

Employees do find virtual collaboration a useful way of collaborating with international colleagues, but not all employees are using the information technology infrastructure as intensive as others. With an increased effort in training and making people aware of information technology that is present within ARCADIS, employees think it could make a difference. The use of the recently implemented (August 2013) enterprise social network Yammer within ARCADIS, does show new IT is not easily adopted, and has no effect on IMIC.

After answering all partial questions, this thesis can answer the main research question:

To what extent do distance and other barriers affect intra-multinational international collaboration of ARCADIS, how and why; and how can distance and barriers be overcome?

Distance and other barriers do negatively affect IMIC, but not every distance or barrier has a similar effect on IMIC. On the business unit level only high institutional distance is negatively associated to IMIC for ARCADIS. Working in an environment with strict rules and regulations affects IMIC positively. Previous point could be explained by the reduced risk in well-regulated countries where business units operate in.

The most significant effects on IMIC can be found on the individual level. The ability to leverage knowledge of international colleagues and willingness to work abroad do affect IMIC in a negative way. Employees simply do not know how to use the knowledge of other international employees. Thereby some of them do not see the need to work abroad, since working in the domestic market is enough for them. High power distance affects IMIC in a negative way. Highly hierarchical atmospheres can create a negative attitude towards IMIC, if employees are only motivated to work for their own business unit. Working in a more or less free working environment, where employees can pursue their own projects with less pressure of management could increase IMIC. Organizational institutional distance seems to be a relevant individual factor that could effect IMIC in a negative way, but further empirical research with statistical analyses must prove the actual significant effect of it on IMIC.

The disability to leverage knowledge of international colleagues, the reluctance to work abroad and high power distance have in common that they can be overcome by changes in management and procedures. Information technology can help out on the previous factors, but cannot overcome previously mentioned individual factors. Helping employees to connect with international colleagues through events might prove useful for leveraging each other's knowledge, but these social events do have to be organised by the management. Explaining the benefits of working abroad, motivating employees to work abroad for a limited amount of time, or even collaborating with international colleagues through the use of information technology can increase IMIC. To decrease the effect of high power distance, management can try to be less strict and soften hierarchical ties, so employees are more open to suggesting other ways of doing things.

DISCUSSION

In this study several factors have been researched on their effect on IMIC. Literature not always cohered with the empirical findings in this study. One of the reasons for the non-coherence of the empirical findings with academic literature might be the fact that intra-multinational international collaboration is a new definition that has not often been used before. Intra-organizational collaboration is closely related to intra-multinational international collaboration, but that definition also includes collaboration within the same country. Inter-organizational collaboration and knowledge transfer were to closely related definitions that were often studied, but those definitions are not completely the same and can therefore create a difference in outcomes.

Differences in cultural distance on the business unit cannot be related to empirical literature, since the used empirical literature is based on a national scale and studies on the business unit level were conceptual frameworks with no empirical data. Nevertheless, the empirical analyses for cultural distance on the business unit level was based on a very limited number of business units which could have a negative effect on the Spearman's correlation test and provide unreliable outcomes.

Social interaction and user resistance of information technology might not have shown a similar effect on IMIC as the academic literature, because of the non-specific formulation of the statements. This might have cause respondents to not find a proper answer in accordance with their opinion.

Non-response on the questionnaires

During this study, several business units of ARCADIS have been studied, although not all of the business units responded to the questionnaires that were send to them, because of the non-response of several business units. Germany and the USA never responded to the leading managers questionnaire, which excluded these business units for all the analyses on the business unit level.

Leading managers of the studied business units were requested to distribute the employee questionnaires among their employees. While leading managers of the Netherlands, Canada

and Belgium distributed the employee questionnaire to more than the requested minimum of 20, Chile and Brazil distributed the questionnaire to 20 people. This could cause a bias for Brazil and Chile, if leading managers of these business units only sent the employee questionnaire to employees that would fill out the questionnaire in a positive way. Showing off their collaborative approach.

Answers to regarding cultural distance, willingness and motivation to collaborate and language are prone to this bias. Cultural distance and willingness and motivation pose several statements that could be seen as a negative attitude towards senior management and therefore employees might fill out the answers to these statements more positive than they actually think. Although anonymity has been promised, employees might still think one way or the other, the results of the questionnaire will find a way to their management. This might have consequences for them. Employees might also be ashamed of their low English proficiency, which inclines them to answer that question relatively positive in stead of answering honestly.

One of the last important things to note is that organizational institutional distance has not been taken into account in this thesis. During the literature review of IMIC, distance and barriers to collaboration, only formal institutional distance was often noted. Organizational institutional distance has obviously been researched to, but this thesis did not focus on that particular subject. Answers to the open questions of the different questionnaires showed that employees and leading managers do think organizational institutional distance is a big inhibitor of IMIC.

The actual framework regarding effects on IMIC

To have a visual representation of distance and barriers that effect IMIC, the conceptual model is once more included, with affecting factors included (Figure 6). Figure 7 shows that on the business unit level, geographic distance and institutional distance are associated to IMIC. Institutional distance is negatively associated, which means a lower rankings on institutional distance is related to lower rankings regarding IMIC. Geographic distance on the other hand is only positively associated to IMIC for the UK and Canada. Apparently the UK and Canada are not prone to larger geographic distances, since those larger distances are still positively associated to IMIC rankings.

On the individual level low willingness and motivation negatively affects IMIC. Low willingness to work abroad negatively affects IMIC, while the ability to leverage knowledge within ARCADIS, lowers motivation to IMIC. Large cultural distance, and in this empirical study only for a large power distance, has a negative effect on IMIC. Employees working in more hierarchical environments are less inclined to IMIC than employees that are working in a freer, less hierarchical environment. At last males have a positive effect on IMIC, showing that the male gender is more inclined to IMIC than the female gender.

When employees of ARCADIS are asked if they could pose solutions for reduced IMIC, especially managerial methods are proposed. According to employees of ARCADIS, management should stimulate and recognize international efforts of employees and business

units. By recognizing and stimulating international efforts, employees will be more inclined to pursue these projects. Thereby procedures regarding international projects and international agreements between business units have to be arranged more easily. At the moment employees think procedures are specified per business unit and not on a global level, which increases the time and cost of pursuing international projects. At last employees of ARCADIS pose an increased understanding of information technology and a more uniform set of information technologies across all business units might provide a vital asset to increase IMIC. At the moment employees of ARCADIS are confused with all information technology that is present and the way in which to use what technology.

Eventually the figure with affecting factors of IMIC originates.

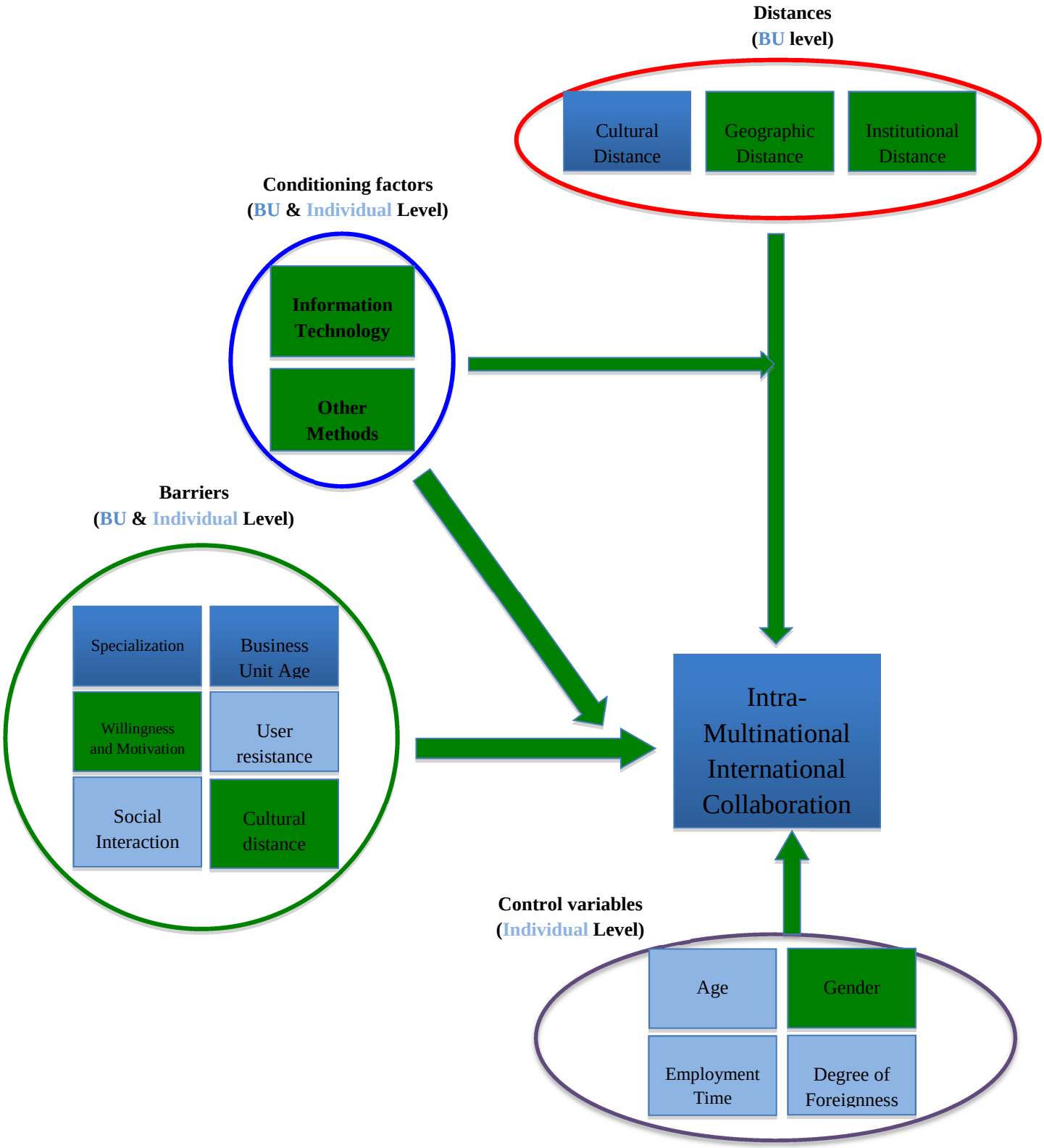

Figure 6 IMIC framework

RECOMMENDATIONS

Recommendations for scholars

With regard to the research methodology, this thesis would recommend future scholars to use the roster recall method in an earlier stage of the study. What this thesis showed is that perceived and received IMIC ties can differ, because of the perception of leading managers. A leading manager might need to be remembered of some IMIC ties. Sometimes not all collaboration ties are noted immediately and follow up interviews could reduce the differences between given and received collaboration ties, to increase the reliability of the data.

Thereby, organizational institutional distance in this thesis has not been covered in an analytical way, due to the fact that was not covered with one or more statement in the questionnaire. Future research should implement organizational institutional distance in studies regarding intra-multinational international collaboration, since employees and leading managers of ARCADIS noted it as an inhibitor of intra-multinational international collaboration.

Recommendations for ARCADIS

For ARCADIS the following recommendations might be of use.

- This thesis came to the conclusion that employees of ARCADIS have a hard time to leverage knowledge of international colleagues. This factor also proved to be a negative influence on intra-multinational international collaboration. To improve this, training in relevant expertise on several continents and social events could help employees to leverage knowledge of international colleagues.
- Another comment by 24% of the employees of ARCADIS is that international projects should be stimulated and recognized by the management. Employees feel that management of their business unit rather pursues domestic projects than international projects because of the reduced risk one business unit has to bear. Agreements apparently do not share the risks of an international project and according to the employees this might de-motivate management to pursue international projects, which reduce intra-multinational international collaboration.
- According to 20% of the employees, global procedures would simplify the international collaboration on projects. Especially hourly rates that differ significantly are a problem for proposing to international projects with colleagues of a variety of business units. Although it is hard to find a balance in hourly rates and global procedures and effort by the management can be helpful, and will give employees the much wanted recognition and stimulation they need to pursue international projects.
- The last recommendation is regarding the current information technology infrastructure at ARCADIS. 22% of the employees say that they are not familiar with all the information technology that is present within ARCADIS. More training regarding collaborative technologies would increase IMIC according to employees. Thereby, reducing the amount of similar tools for collaboration could reduce user resistance of technology according to employees of ARCADIS.

7 LITERATURE

Alberghini, E., Cricelli, L., & Grimaldi, M. (2013). KM versus enterprise 2.0: a framework to tame the clash. *International Journal of Information Technology and Management*, 12(3), 320-336.

Almeida, P., Song, J., Grant, R., 2002. Are firms superior to markets and alliances? An empirical investigation of cross-border knowledge building. *Organization Science* 13 (2), 147-161.

Ambos, T.C., Ambos, B. (2009), The importance of distance on knowledge transfer effectiveness in multinational corporations, *Journal of International Management,* 15(1), p. 1-14

ARCADIS (2012), private research by ARCADIS in 2012

ARCADIS (2014), www.arcadis.com visited on 17-10-2014

Ardichvili, A., Maurer, M., Li, W., Wentling, T., & Stuedemann, R. (2006). Cultural influences on knowledge sharing through online communities of practice. *Journal of knowledge management*, 10(1), 94-107.

Argote, L. Ingram, P. (2000). Knowledge transfer: A basis for competitive advantage in firms, *Organizational behavior and Human Decision Processes*, 82 (1) p. 150-169

Bauer, F., & Matzler, K. (2014). Antecedents of M&A success: The role of strategic complementarity, cultural fit, and degree and speed of integration. Strategic Management Journal, 35(2), 269-291.

Beugelsdijk, S. Mudambi, R. (2013), MNEs as border-crossing multi-location enterprises: The role of discontinuities in geographic space, *Journal of International Business Studies*, 44, p. 413-426

Bhagat, R. S., Kedia, B. L., Harveston, P. D., & Triandis, H. C. (2002). Cultural variations in the cross-border transfer of organizational knowledge: An integrative framework. *Academy of Management Review*, 27(2), 204-221.

Boschma, R. (2005). Proximity and innovation: a critical assessment. Regional studies, 39(1), 61-74.

Breschi, S., & Lissoni, F. (2003). Mobility and social networks: Localised knowledge spillovers revisited. *Milan: University Bocconi, CESPRI Working Paper*, 142.

Bryman, A. (2012). *Social research methods*. Oxford university press.

Buckley, P. J., & Casson, M. (1976). *The future of the multinational enterprise* (Vol. 1). London: Macmillan.

Bughin, J. (2008). The rise of enterprise 2.0. *Journal of Direct, Data and Digital Marketing Practice*, 9(3), 251-259.

Cairncross, F. (2001). The death of distance: How the communications revolution is changing our lives. Harvard Business Press.

Carlsson, S. A. (2003), Knowledge managing and Knowledge management systems in inter-organizational networks, *Knowledge and process management*, 10 (3), p. 194-206

Casson, M. (1987). T*he firm and the market: Studies on multinational enterprise and the scope of the firm.* MIT Press.

Chang, Y. Y., Gong, Y., & Peng, M. W. (2012). Expatriate knowledge transfer, subsidiary absorptive capacity, and subsidiary performance. *Academy of Management Journal*, 55(4), 927-948.

Chao, M. C. H., & Kumar, V. (2010). The impact of institutional distance on the international diversity–performance relationship. *Journal of World Business*, 45(1), 93-103.

Chatterjee, S., Lubatkin, M. H., Schweiger, D. M., & Weber, Y. (1992). Cultural differences and shareholder value in related mergers: Linking equity and human capital. *Strategic Management Journal*, 13(5), 319-334.

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: a new perspective on learning and innovation. *Administrative science quarterly*, 35(1).

Currall, S. C., & Judge, T. A. (1995). Measuring trust between organizational boundary role persons. *Organizational behavior and Human Decision processes*, 64(2), 151-170.

Cyert, R.M., March, J.G., 1992. A *behavioural theory of the firm*, Blackwell: Cambridge.

Daft, R.L., Lengel, R.H., 1986. Organizational information requirements, media richness and structural design. *Management Science* 32 (5), 554-571

Dastidar, P., & Zaheer, S. 2010. Dealing with information asymmetry in cross-border acquisitions: Distance matters, *Paper Proceedings, Academy of Management Annual Meeting*, Montreal, Canada.

Easterby-Smith, M., Lyles, M. A., & Tsang, E. W. (2008). Inter-organizational knowledge transfer: Current themes and future prospects. *Journal of management studies*, 45(4), 677-690.

Frances, J. (2004), Institutions, firms and economic growth, *New Zealand treasury working paper*, 1-41

Ghemawat, P. (2001). Distance still matters. *Harvard business review*, 79(8), 137-147.

Hansen, M. T., & Nohria, N. (2004). How to build collaborative advantage. *MIT Sloan Management Review*, 46(1), 22-30.

Hofstede, G. (1997), Culture and Organizations: Software of the Mind, *McGraw-Hill Co*., New York, NY.

Hofstede, G. (2001). Culture's consequences: International differences in work-related values. (2nd ed.). *Thousand Oaks*, CA: Sage.

Husted, K., & Michailova, S. (2002). Diagnosing and fighting knowledge-sharing hostility. *Organizational Dynamics*, 31(1), 60-73.

Huxham, C. (Ed.). (1996). *Creating collaborative advantage*. Sage.

Huxham, C., & Vangen, S. (2013). *Managing to collaborate: The theory and practice of collaborative advantage*. Routledge.

Inkpen, A. C., & Pien, W. (2006). An examination of collaboration and knowledge transfer: China–Singapore Suzhou Industrial Park. *Journal of Management Studies*, 43(4), 779-811.

International Property Rights Index (IPRI) (2013), http://www.internationalpropertyrightsindex.org/ranking visited on 16-9-2014

Jansen, J. J., Van Den Bosch, F. A., & Volberda, H. W. (2005). Managing potential and realized absorptive capacity: how do organizational antecedents matter?. *Academy of Management Journal*, 48(6), 999-1015.

Kandampully, J. (2002), Innovation as the core competency of a service organization: The role of technology, knowledge and networks, *European Journal of Innovation Management*, 5 (1), p. 18-26

Kim, H. Kankanhalli, A. (2009), Investigating user resistance to Information systems Implementation, *MIS Quarterly*, 33 (3), p. 567-582

Kogut, B., Zander, U., 1992. Knowledge of the firm, combinative capabilities, and the replication

of technology. *Organization Science* 3, 383-97.

Kogut, B., & Zander, U. (1993). Knowledge of the firm and the evolutionary theory of the multinational corporation. *Journal of international business studies*, 24, 625-625.

Kostova, T., & Roth, K. (2002). Adoption of an organizational practice by subsidiaries of multinational corporations: Institutional and relational effects. *Academy of management journal*, 45(1), 215-233.

Lucas, L.M. (2006), The role of culture on knowledge transfer: The case of the multinational corporation, *The learning organization,* 13 (3) p. 257-275

Minbaeva, D. B. (2007). Knowledge transfer in multinational corporations. *Management International Review*, 47(4), 567-593.

Minbaeva, D. B., & Michailova, S. (2004). Knowledge transfer and expatriation in multinational corporations: the role of disseminative capacity. *Employee Relations*, 26(6), 663-679.

Minbaeva, D., Pedersen, T., Björkman, I., Fey, C. F., & Park, H. J. (2003). MNC knowledge transfer, subsidiary absorptive capacity, and HRM. *Journal of International Business Studies*, 34(6), 586-599.

Mithas, S., Tafti, A., Bardhan, I., & Mein Goh, J. (2012). Information Technology and Firm Profitability: Mechanisms and Empirical Evidence. *Mis Quarterly*, 36(1).
Chicago

Möller, K. & Svahn, S. (2004), Crossing East-West Boundaries: Knowledge sharing in intercultural business networks, *Industrial Market Management,* 33, p. 219-228

Morris, M. G., Venkatesh, V., & Ackerman, P. L. (2005). Gender and age differences in employee decisions about new technology: An extension to the theory of planned behavior. Engineering Management, IEEE Transactions on, 52(1), 69-84.

Muscio, A. (2007). The impact of absorptive capacity on SMEs' collaboration. *Economics of Innovation and New Technology*, *16*(8), 653-668.

Nold III, H. A. (2012). Linking knowledge processes with firm performance: Organizational culture. Journal of Intellectual Capital, 13(1), 16-38.

Noorderhaven, N., & Harzing, A. W. (2009). Knowledge-sharing and social interaction within MNEs. *Journal of International Business Studies*, 40(5), 719-741.

North, D. C. (1991)." Institutions.". *Journal of Economic Perspectives*, 5(1), 97-112.

North, Douglass C (1994) "Economic performance through time." American Economic

Review 84(3): 359-368. Phene, A., Madhok, A., & Liu, K. (2005). Knowledge transfer within the multinational firm: what drives the speed of transfer? *MIR: Management International Review*, 53-74.

Polanyi, M. (1967). The tacit dimension.

Ramthun, A. J., & Matkin, G. S. (2012). Multicultural Shared Leadership A Conceptual Model of Shared Leadership in Culturally Diverse Teams. Journal of Leadership & Organizational Studies, 19(3), 303-314.

Rodrik, Dani (2003) "Growth strategies." Cambridge MA, National Bureau of Economic

Research, Working Paper No 10050

Santoro, F. M., Borges, M. R., & Rezende, E. A. (2006). Collaboration and knowledge sharing in network organizations. Expert Systems with Applications, 31(4), 715-727.

Senes (2014), www.senes.ca visited on 22-11-2014

Slangen, A. H. (2011). A Communication□Based Theory of the Choice Between Greenfield and Acquisition Entry. Journal of Management Studies, 48(8), 1699-1726.

Storper, M., & Venables, A. J. (2004). Buzz: face-to-face contact and the urban economy. *Journal of economic geography*, 4(4), 351-370.

Szulanski, G. (1996). Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic management journal*, 17(WINTER), 27-43.

Szulanski, G. (2000), The process of knowledge transfer: A diachronic analysis of stickiness, *Organizational behavior and Human Decision Processes*, 82 (1) p. 9-27

Tallman, S., & Phene, A. (2007). Leveraging knowledge across geographic boundaries. *Organization Science*, 18(2), 252-260.

Tanriverdi, H. (2005), Information technology relatedness, knowledge management capability, and performance of business firms, *MIS Quarterly*, 29 (2) p. 311-334

Tsai, W. (2001), Knowledge transfer in intra-organizational networks: Effects of network position and absorptive capacity on business unit innovation and performance, *The academy of management journal*, 44 (5), p. 996-1006

Wang, Y. S., Wu, M. C., & Wang, H. Y. (2009). Investigating the determinants and age and gender differences in the acceptance of mobile learning. British Journal of Educational Technology, 40(1), 92-118.

Van Wijk, R., Jansen, J. J., & Lyles, M. A. (2008). Inter-and Intra-Organizational Knowledge Transfer: A Meta-Analytic Review and Assessment of its Antecedents and Consequences. *Journal of Management Studies*, 45(4), 830-853.

Williams, M. (2007). Building genuine trust through interpersonal emotion management: A threat regulation model of trust and collaboration across boundaries. *Academy of Management Review*, 32(2), 595-621.

World Bank Group (2013), Enforcing contract database 2013, http://www.doingbusiness.org/data/exploretopics/enforcing-contracts visited on 16-9-2014

Wu, M. (2006), Hofstede's Cultural Dimensions 30 Years later: A study of Taiwan and the United States, *Intercultural Communication Studies*, 15 (1), 33-42

Würsten, H. Lanzer, F. Fadrhonc, T. (2014), How to improve efficiency in your HR-capital, Intercultural Management (http://www.itim.org/managing_people_across_cultures.pdf , visited on 23-04-2014)

Xu, D., & Shenkar, O. (2002). Note: Institutional distance and the multinational enterprise. *Academy of Management Review*, 27(4), 608-618.

Luo, Y. (2005). Toward coopetition within a multinational enterprise: a perspective from foreign subsidiaries. *Journal of World Business*, 40(1), 71-90.

Yoo, B., Donthu, N., & Lenartowicz, T. (2011). Measuring Hofstede's five dimensions of cultural values at the individual level: Development and validation of CVSCALE. *Journal of International Consumer Marketing*, 23(3-4), 193-210.

Zaheer, S., Schomaker, M. S., & Nachum, L. (2012). Distance without direction: Restoring credibility to a much-loved construct. *Journal of International Business Studies*, *43*(1), 18-27.

Zakaria, N., Amelinckx, A., & Wilemon, D. (2004). Working Together Apart? Building a Knowledge-Sharing Culture for Global Virtual Teams. *Creativity and innovation management*, 13(1), 15-29.

APPENDICES

APPENDIX A: ANSWERS OF LEADING MANAGERS TO ADDITIONAL QUESTIONS

Description	BE	BR	CA	CH	FR
Employee characteristics have influence on collaboration	Y	Y	Y	Y	Y
Why?	Country specific practices, culture and language	Specialization, culture, language, no capacity for international projects.	Specialization of practices and cultural differences	Specialization, hardly international projects, employees don't want to travel, no capacity	Specialization, and hardly any international projects
Influence of language	Y	Y	Y	Y	Y/N
Why?	Other language	English level isn't sufficient	Creates opportunities. Everyone is open but not everyone wants to leave the country for a long time	Not sufficient English proficiency.	Employees haven't got sufficient English skills to work on international projects.
Acknowledge effort of ARCADIS into collaboration?	Y	Y	Y and N	Y	Y
In what way	X	Virtual networks, strategic global purchases	Collaboration efforts on a more senior level.	Strategy, regional teams, value propositions	Virtual collaboration networks and collaboration groups. Not enough budget though

M&A?	N	N	Y	N	N
Employees degree of foreignness	Native	Native	Native	Native	Native
Years with BU	14	10	1	1.5	6
Other additions?	No	Rates and tax issues. Respect each others culture	Collaboration is ad hoc and very much based on who you know. ARCADIS works as a international company not a global once (BU structure is bad)	Initial investments in collaboration	No

Description	**IN**	**ME**	**NL**	**PL**	**UK**
Employee characteristics have influence on collaboration	Y	Y	Y	Y	Y
Why?	Specialization, cultural characteristics	Specialization	Specialization, for some a language barrier	Specialization, no capacity	Specialization, no capacity, unplanned costs that aren't recovered.
Influence of language	N	N	Y	Y	Y

Why?	English proficiency is good.	English is spoken, but Arabic is the country's language.	A number employees haven't got a sufficient level of English proficiency to work internationally	Not enough staff for ongoing projects	Native language creates opportunities outside the domestic market
Acknowledge effort of ARCADIS into collaboration?	Y	N	Y	Y	Y
In what way	Online platforms, business collaboration efforts and integration of newly acquired company	Recently acquired, but no clear vision has been set. Collaboration efforts aren't made.	More international business opportunities are created. Online platforms	Sharing of knowledge between Business units	VPLs, GKNs, The Cube
M&A?	Y	Y	N	N	Y
Employees degree of foreignness	Native	Foreign	Native	Native	Native
Years with BU	1	1	16	6	3
Other additions?	More effort into competency mapping and then collaboration will happen.	No collaboration efforts, little sympathy of other offices in ME, no clear future vision.	More social interaction, face-to-face, technological adaptation, similar rates, no BU goals, willingness to invest time	Difference in rates are a limiting factor	

APPENDIX B: CULTURAL DISTANCE MEASURES

Description	Population	Mean
Power Distance		
Managers should make most decisions without consulting subordinates.	166	1.86
It is frequently necessary for a manager to use authority and power when dealing with subordinates.	166	2.16
Managers seldom ask for the opinion of other employees.	166	2.82
Subordinates should not disagree with management.	163	1.85
Managers should not delegate important tasks to subordinates	167	1.96
	Average PD	**2.13**
Uncertainty Avoidance		
It is important to have job requirements and instructions spelled out in detail, so that employees always know what they are expected to do.	166	3.31
Managers expect workers to closely follow instructions and procedures.	166	3.58
Rules and regulations are important because they inform workers what they organization expects of them.	166	3.78
Standard operating procedures are helpful to employees on the job.	164	3.88
Instructions for operations are important for employees on the job.	166	3.92
	Average UA	**3.69**
Masculinity		
Meetings are usually run more effectively when a man leads them.	166	1.79
It is more important for men to have a professional career than it is for women.	166	1.51
Men usually solve problems with logical analysis; women usually solve problems with intuition.	167	1.93
Solving organizational problems usually requires an active, forcible approach that is typical of men.	167	1.62
It is preferable to have a man in a higher-level position rather than a woman.	166	1.42

	Average MF	**1.65**
Collectivism		
Individuals should sacrifice self-interest for the group.	165	3.09
Individuals should stick with the group even through difficulties.	166	3.63
Group welfare is more important than individual rewards.	165	3.52
Group success is more important than individual success.	166	3.71
Individuals should only pursue their goals after considering the welfare of the group.	167	3.10
Group loyalty should be encouraged even if individual goals suffer.	167	3.05
	Average IC	**3.35**

APPENDIX C: MULTICOLLINEARITY

	IMIC	PD	UA	MF	IC	Identify Knowledge	Make use of knowledge	Opportunities to share knowledge	Work on international projects	Solve problems yourself	Share knowledge	Ease of IT use	Virtual collaboration	Yammer	Domestic work	Social interaction	Language	Foreignness	Time employed	Gender	Age	M&A
IMIC	1	-.188	.144	.022	.163	-.135	-.355	.085	.205	-.039	-.024	-.032	.010	.147	-.224	.129	.041	.332	.074	-.219	-.050	-.108
PD	-.188	1	.073	.263	-.089	-.034	.070	-.007	-.004	.191*	.031	-.086	-.203*	.024	.200*	.008	-.073	-.058	.022	-.002	-.015	-059
UA	-.144	.073	1	.049	.152	-.042	-.143	-.007	-.001	.040	-.096	.008	.100	-.060	.034	.225	.102	.115	-.064	.100	-.041	.012
MF	.022	.263	.049	1	.071	-.083	-.120	-.069	.024	.111	-.053	.098	.127	.030	.181	.040	.003	-.006	.005	-.204	.104	-.106
IC	.163	-.089	.152	.071	1	.027	-.087	.032	.060	-.093	-.081	.103	.162	-.058	-.127	.139	-.049	.007	.099	-.300	.089	-.062
Identify	-.135	-.034	-.042	-.083	.027	1	.458	-.191	-.206	.030	-.039	-.150	.045	-.044	-.121	.022	.043	-.115	-.104	.018	.096	.139

Ability to Leverage knowledge	-.355	.070	-.143	-.120	-.087	.458	1	-.223	-.366	-.037	.040	-.196	-.021	-.087	.099	-.072	.010	-.028	-.023	.122	.012	.127
Opportunities to share knowledge	.085	-.007	-.007	-.069	.032	-.191	-.223	1	.354	.103	-.024	.246	.149	.171	-.031	.036	-.043	.059	.084	-.019	.042	.122
Work on international projects	.205	-.004	-.001	.024	.060	-.206	-.366	.354	1	.110	-.086	.262	.128	.015	.033	.028	-.046	.176	.064	-.038	-.021	-.031
Solve problems yourself	-.039	.191	.040	.111	-.093	.030	-.037	.103	.110	1	-.238	.043	-.207	-.051	.240	-.015	-.121	.014	-.092	.020	-.062	-.032
Share knowledge	-.024	.031	-.096	-.053	-.081	-.039	.040	-.024	-.086	-.238	1	-.026	-.009	.080	-.108	.036	.035	.061	.017	.068	.002	.100
Ease of IT use	-.032	-.086	.008	.098	.103	-.150	-.196*	.246	.262	.043	-.026	1	.388	.095	-.020	-.128	-.002	-.012	.062	.003	-.063	-.042
Virtual Collaboration	.010	-.203	.100	.127	.162	.045	-.021	.149	.128	-.207	-.009	.388	1	.103	-.055	.128	.090	.028	.032	.039	.071	.041
Yammer	.147	.024	-.060	.030	-.058	-.044	-.087	.171*	.015	-.051	.080	.095	.103	1	-.088	.038	.018	.075	.181	.012	-.001	-.027

Domestic Work	-.224	.200	.034	.181	-.127	-.121	.099	-.031	.033	.240	-.108	-.020	-.055	-.088	1	-.095	-.193	-.114	.022	.033	-.044	-.025
Social Interaction	.129	.008	.225	.040	.139	.022	-.072	.036	.028	-.015	.036	-.128	.128	.038	-.095	1	-.022	.090	.120	-.052	-.038	.007
Language	.041	-.073	.102	.003	-.049	.043	.010	-.043	-.046	-.121	.035	-.002	.090	.018	-.193	-.022	1	-.025	-.119	-.084	.077	.059
Foreignness	.332	-.058	.115	-.006	.007	-.115	-.028	.059	.176*	.014	.061	-.012	.028	.075	-.114	.090	-.025	1	.026	-.016	-.109	.082
Time employed	.074	.022	-.064	.005	.099	-.104	-.023	.084	.064	-.092	.017	.062	.032	.181	.022	.120	-.119	.026	1	-.018	.081	-.260
Gender	-.219	-.002	.100	-.204	-.300	.018	.122	-.019	-.038	.020	.068	.003	.039	.012	.033	-.052	-.084	-.016	-.018	1	-.179	.047
Age	-.050	-.015	-.041	.104	.089	.096	.012	.042	-.021	-.062	.002	-.063	.071	-.001	-.044	-.038	.077	-.109	.081	-.179*	1	.064
M&A	-.108	.059	.012	-.106	-.062	.139	.127	-.122	-.031	-.032	.100	-.042	.041	-.027	-.025	.007	.059	.082	-.260	.047	.064	1

APPENDIX D: ANSWERS TO OPEN QUESTION BY EMPLOYEES

Barriers to IMIC mentioned by employees				
Barrier	**Score**	**%**	**Description**	**Total**
Institutional				
Administrative/Accounting	48	32	Administration per operation community, tax rates, visas for international work, currencies, contracting problems.	114
Billability	40	27	Goals set by management to reach profitability flow through in billability goals for employees. This can impede collaboration, because certain goals might not be met.	
Work rates	26	18	International hourly rates are different per operation community, which results in high rates for certain operation communities and loss of feasibility for international collaboration.	
Culture	31	21	Cultural differences between operation communities, but mainly language barriers	31
Finding expertise	25	17	No knowledge where to find expertise within the internal network of ARCADIS.	25
Technology	10	7	Lack of knowledge of technologies that could increase collaboration. Hard to choose technology to use, because there are so many.	10
Specialization	7	5	Country specific expertise or practices are not transferable to other countries, which collaboration	7
Social interaction	6	4	No previous contact and lack of trust reduce international collaboration	6
Geographic distance	4	3	Time zones due to large geographic distance between operation communities and business units hamper collaboration.	4

Willingness	3	2	Due to personal circumstances, willingness to work abroad for a period of time is not preferred.	3
M&A	2	1	Recent acquisition and reduced integration hamper collaboration	2
			Responses by employees regarding barriers	202
N=143				

APPENDIX E: LEADING MANAGERS QUESTIONNAIRE

Questionnaire for Leading Managers of ARCADIS: Country collaboration profiles

Thank you for cooperating in this short questionnaire. This questionnaire will be used for a study that maps out international collaboration of different business units of ARCADIS. The study is primarily confined to the environment department, and eventually points out if there are certain factors that affect collaboration within the international network of ARCADIS' business units.

In this questionnaire collaboration is defined as either:
1. Project Collaboration with other employees of ARCADIS business units
2. Knowledge sharing activities to expand best practices among ARCADIS employees
3. Or both of the above

Your cooperation in this questionnaire will help ARCADIS to either leverage positive factors that influence international collaboration or reduce barriers to international collaboration. Your answers and cooperation in this questionnaire will be completely anonymous in this study. Open questions can be answered with elaborate explanations as you wish. (textboxes have unlimited space); the questions on the 5-point Likertscale (answers between strongly disagree and strongly agree) only need one of the 5 posed answers checked.

Thank you,

Best regards,

Matthijs Engelbert van Bevervoorde, ARCADIS The Netherlands
Matthijs.engelbertvanbevervoorde@arcadis.nl

APPENDIX F: EMPLOYEE QUESTIONNAIRE

Questions are rated on a 5 point Likert scale, unless stated different

1. I often collaborate with ARCADIS colleagues in other countries
2. It is hard to identify knowledge that is present within ARCADIS
3. It is hard to make use of expertise and knowledge possessed by international colleagues at ARCADIS
4. There are a lot of media and opportunities to share knowledge with colleagues within ARCADIS
5. There are enough opportunities to collaborate on international projects with other employees
6. I would rather solve problems related to work myself than ask for help
7. I would rather share knowledge related to work with others, than keep it to myself
8. Information technology that is used to share knowledge and collaborate on projects is easy to use
9. Virtual collaboration (through the use of IT) is useful for project collaboration and knowledge sharing
10. I often use Yammer to collaborate with other employees
11. I would rather keep my work confined to my own country and the domestic market
12. Previous contact with colleagues, stimulates future collaboration with those colleagues

Cultural Dimensions
Power distance

13. Managers should make most decisions without consulting subordinates
14. It is frequently necessary for a manager to use authority and power when dealing with subordinates
15. Managers seldom ask for the opinions of other employees
16. Subordinates should not disagree with management
17. Managers should not delegate important tasks to subordinates

Uncertainty avoidance

18. It is important to have job requirements and instructions spelled out in detail, so that employees always know what they are expected to do.
19. Managers expect workers to closely follow instructions and procedures.
20. Rules and regulations are important because they inform workers what the organisation expects of them.
21. Standard operating procedures are helpful to employees on the job
22. Instructions for operations are important for employees on the job

Masculinity

23. Meetings are usually run more effectively when a man leads them.
24. It is more important for men to have a professional career than it is for women to have a professional career.
25. Men usually solve problems with logical analysis; women usually solve problems with intuition.
26. Solving organisational problems usually requires an active, forcible approach that is typical of men.
27. It is preferable to have a man in a high level position rather than a woman.

Collectivism

28. Individuals should sacrifice self-interest for the group.
29. Individuals should stick with the group even through difficulties
30. Group welfare is more important than individual rewards.
31. Group success is more important than individual success.
32. Individuals should only pursue their goals after considering the welfare of the group.
33. Group loyalty should be encouraged even if individual goals suffer

Categorical questions (multiple choice, not Likert scale)

34. My English is of a sufficient level for working on international projects within ARCADIS.
35. In what country/region are you working for ARCADIS?
36. Do you consider yourself more native or more foreign to the country's operation community you work for?
37. How long are you already working for ARCADIS or one of the ARCADIS companies? (as in the amount of years that your company is part of ARCADIS)
38. What is your gender?
39. What is your age?
40. Was the business unit where you work for acquired by, or merged with ARCADIS within the last 3 years?

Open questions

41. Is there a reason why you would not like to collaborate internationally or share knowledge with international colleagues? Why?
42. Do you think that barriers to international collaboration exist within the global ARCADIS network? Why, and what barriers do you experience?
43. How do you think possible barriers to international collaboration could be overcome?

Questionnaire for Leading Managers of ARCADIS: Country collaboration profiles

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Thank you,

Best regards,

Matthijs Engelbert van Bevervoorde, ARCADIS The Netherlands
Matthijs.engelbertvanbevervoorde@arcadis.nl

1. The next questions will map out collaboration between your country and business units in other countries. At every named country an answer regarding the next three points will be required.

   1. ***Degree of collaboration*** *(never, sometimes, often)*
   2. ***Kind of collaboration*** *(knowledge sharing, project collaboration or both)* and,
   3. ***The reason*** why there is or isn't collaboration between your country and the posed country.

   UNITED STATES
   Degree of collaboration:

☐ Never ☐ Sometimes ☐ Often

   Kind of collaboration:

☐ Project Collaboration ☐ Knowledge Sharing ☐ Both

   Reason for existing/non-existing collaboration:

   CANADA
   Degree of collaboration:

☐ Never ☐ Sometimes ☐ Often

   Kind of collaboration:

☐ Project Collaboration ☐ Knowledge Sharing ☐ Both

   Reason for existing/non-existing collaboration*:*

   BRAZIL
   Degree of collaboration:

☐ Never ☐ Sometimes ☐ Often

   Kind of collaboration:

☐ Project Collaboration ☐ Knowledge Sharing ☐ Both

   Reason for existing/non-existing collaboration:

   CHILE
   Degree of collaboration:

☐ Never ☐ Sometimes ☐ Often

   Kind of collaboration:

☐ Project Collaboration ☐ Knowledge Sharing ☐ Both

   Reason for existing/non-existing collaboration:

UNITED KINGDOM
Degree of collaboration:

☐ Never ☐ Sometimes ☐ Often

Kind of collaboration:

☐ Project Collaboration ☐ Knowledge Sharing ☐ Both

Reason for existing/non-existing collaboration:

THE NETHERLANDS
Degree of collaboration:

☐ Never ☐ Sometimes ☐ Often

Kind of collaboration:

☐ Project Collaboration ☐ Knowledge Sharing ☐ Both

Reason for existing/non-existing collaboration:

BELGIUM
Degree of collaboration:

☐ Never ☐ Sometimes ☐ Often

Kind of collaboration:

☐ Project Collaboration ☐ Knowledge Sharing ☐ Both

Reason for existing/non-existing collaboration:

GERMANY
Degree of collaboration:

☐ Never ☐ Sometimes ☐ Often

Kind of collaboration:

☐ Project Collaboration ☐ Knowledge Sharing ☐ Both

Reason for existing/non-existing collaboration:

FRANCE

Degree of collaboration:

☐ Never ☐ Sometimes ☐ Often

Kind of collaboration:

☐ Project Collaboration ☐ Knowledge Sharing ☐ Both

Reason for existing/non-existing collaboration:

POLAND

Degree of collaboration:

☐ Never ☐ Sometimes ☐ Often

Kind of collaboration:

☐ Project Collaboration ☐ Knowledge Sharing ☐ Both

Reason for existing/non-existing collaboration:

MIDDLE EAST

Degree of collaboration:

☐ Never ☐ Sometimes ☐ Often

Kind of collaboration:

☐ Project Collaboration ☐ Knowledge Sharing ☐ Both

Reason for existing/non-existing collaboration:

INDIA

Degree of collaboration:

☐ Never ☐ Sometimes ☐ Often

Kind of collaboration:

☐ Project Collaboration ☐ Knowledge Sharing ☐ Both

Reason for existing/non-existing collaboration:

*Following statements will be answered with **one** of the options below every statement. Unless told otherwise.*

2. Project employees working at the business units in my country, have the ability to acquire new knowledge and achieve the ARCADIS' targets

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

3. Project employees working at the business units in my country, have a clear vision of ARCADIS' strategy for the business units in my country, and know what needs to be done to achieve that vision

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

4. Project employees working at the business units in my country have the technical competency to absorb knowledge from within the ARCADIS global network

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

5. Project employees working at the business units in my country have the necessary skills to implement the preferred practices of ARCADIS

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

6. Project employees working at the business units in my country have the necessary skills to convert international ARCADIS practices to the level and characteristics of my country's practices

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Neutral
- [ ] Agree
- [ ] Strongly Agree

7. Project employees working at the business units in my country have the ability to exploit new knowledge within the ARCADIS network.

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Neutral
- [ ] Agree
- [ ] Strongly Agree

8. When faced with problems, our employees often ask for help outside of their business unit.

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Neutral
- [ ] Agree
- [ ] Strongly Agree

9. When faced with problems, our employees strive to solve the problems by themselves.

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Neutral
- [ ] Agree
- [ ] Strongly Agree

10. There is a prevailing attitude in our unit that employees ought to solve their problems themselves.

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Neutral
- [ ] Agree
- [ ] Strongly Agree

11. Our employees do not share their knowledge in fear of becoming less valuable to ARCADIS, because of standardizing the knowledge.

- [ ] Strongly Disagree
- [ ] Disagree
- [ ] Neutral
- [ ] Agree
- [ ] Strongly Agree

12. Do you think country characteristics regarding employees and practices have an influence on international collaboration?

- [ ] Yes
- [ ] No

13. Why would country characteristics have an influence on international collaboration? (Check all boxes that are applicable)

- [ ] We have country specific practices
- [ ] We hardly work on international projects
- [ ] We haven't got the capacity to work on international projects
- [ ] A big part of our employees don't want to travel for work
- [ ] Other namely:

14. Does your country's native language influence international collaboration within ARCADIS?

- [ ] Yes
- [ ] No

15. Why does/doesn't your countries native language influence international collaboration within ARCADIS? (Check all boxes that are applicable)

- [ ] Our native language creates opportunities for ARCADIS outside of our domestic market
- [ ] Our employees haven't got sufficient English skills to work on international projects for ARCADIS
- [ ] Other, namely:

16. ARCADIS puts a lot of effort in increasing international collaboration between different ARCADIS countries. Do you notice the effort that ARCADIS is putting into collaboration strategies?

- [ ] Yes
- [ ] No

17. In what way do you notice the effort that ARCADIS is putting into international collaboration?

18. Was the business unit where you work for acquired by, or merged with ARCADIS within the last 3 years?

- [ ] Yes
- [ ] No

19. Are employees at your countries business units mainly native or foreign?

- [ ] Native
- [ ] Foreign

20. How many years do you already work for ARCADIS? And has it been for the same division and business unit all the time?

21. Are there other things you want to share, regarding international collaboration between business units of ARCADIS?

22. For what OpCo are you working for ARCADIS?

Belgium