

**Development of a conceptual model of the interrelation between
culture and decision support systems**

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List of Abbreviations

ANN	Artificial Neural Network
ARIS	Architecture of Integrated Information Systems
CEO	Chief Executive Officer
CRM	Customer Relationship Management
DSS	Decision Support System
e.g.	exempli gratia
ERP	Enterprise Resource Planning
ESS	Executive Information System
Etc.	Et Cetera
GDP	Gross Domestic Product
GDSS	Group Decision Support System
GUI	Graphical User Interface
ICS	Intercultural Similarity
IDV	Individualism versus Collectivism
IND / IVR	Indulgence versus Restraint
IS	Information System
IT	Information Technology
KMS	Knowledge Management System
LTO	Long Term Orientation
M&A	Mergers & Acquisitions
MAS	Masculinity versus Femininity
MIS	Management Information System
PDI	Power Distance Index
RQ	Research Question
SCM	Supply Chain Management
UAI	Uncertainty Avoidance Index
XML	Extensible Markup Language

1 Introduction

Human capital has become one of the most critical issues in organization's performance, especially while knowledge became an increasingly important competitive advantage in today's globalization.¹ Hence, the demand for skilled workers increases especially due to global competition.² In this regard, organizations eagerly try to hire skilled workers from abroad maintaining their competitive advantage. In today's global economy, the so-called 'brain drain' phenomenon becomes of major importance. In the brain drain phenomenon, a person receives a sophisticated education in his host country and then, however, moves abroad for his job.³ When brain drain becomes a leading concern in a country, it has severe implications. On the one hand, it leads to an increasing loss of knowledge and, consequently, to a decreasing productivity. On the other hand, the country does not get a return of its investment in the education of these people.⁴ The German Government, therefore, loosens the immigration rules for foreigners making them come to Germany, to cope with this development.⁵ Obviously, people from other countries behave differently, have a different culture; consequently, organizations have to deal with these diverse cultures.

1.1 Motivation and Purpose of the Thesis

Hereof, you usually do not think about culture until you encounter culture-related problems,⁶ but this might be already too late to deal with them. As an example, in the aviation fast and accurate decision-making is of utmost importance, especially in life-threatening situations. However, in the case of Avianca Airlines, differences in national culture of the crew finally led to a crash. The overall harmony of the situation was of higher importance for the crew than conveying bad news or having a disagreement with the pilot. Concepts like conveying bad news or resolving disagreements differ among cultures.⁷

Consequently, today's managers have to consider cultural influences when managing an international workforce.⁸ As organizations deal with an increasingly international workforce, it is necessary not only to understand but also to predict the behavior of the members of other cultures.⁹ When organizations encounter problems with their workforce, they often blame

¹ Cf. Crook et al. (2011): 453.

² Cf. Murakami (2010): 23.

³ Cf. Murakami (2010): 24.

⁴ Cf. Murakami (2010): 25.

⁵ Cf. Organisation for Economic Co-operation and Development (2013): 15.

⁶ Cf. Leidner/Kayworth (2006): 373.

⁷ Cf. Helmreich (1994): 281–283.

⁸ Cf. Perkins (2009): 72.

⁹ Cf. Curtis/Conover/Chui (2012): 5.

culture as a possible cause.¹⁰ Thus, a significant body of research has attempted to understand these culture-related causes.¹¹

However, ever since, management theories are Western biased, so managers, especially Western managers, have to be careful dealing with non-Western employees in order to not making mistakes.¹² This is especially important, as the economic growth of East Asia has highly influenced Western countries; especially Korea¹³ is influential as being economically important in East Asia.¹⁴ Asian markets, especially the Korean one (*e.g. Samsung*), get an increasingly dominant role in the global business. Therefore, Western managers have to study the East Asian way of doing business.¹⁵ As there are noticeable discrepancies between Western and Non-Western style management,¹⁶ managers need to understand the ‘social rulebook’.¹⁷ When people from other countries get together, misunderstandings are just a matter of time. For instance, the concept ‘face’ has no direct equivalent in the English language, but is similar to the meaning of being humiliated. In Korea, the concept is very important and needs to be considered, where the social context is of major importance. In Germany, it is not existent. Here, the concept of self-respect is of higher importance than considering one’s context.¹⁸ Consequently, employees should be aware that their concepts might not apply to other employees from other countries.¹⁹

Intercultural situations do not solely take place face-to-face communications, but also in the field of information technology (IT). Information technology enables organizations to communicate to anyone on the world within milliseconds. This is especially important for internationally acting organization, which are then able to make global decisions in real time.²⁰ However, it is essential to have an understanding of culture when dealing with IT; this is because culture influences, directly and indirectly, the usage of IT and, consequently, the managerial practices of an organization. Thus, there is a considerable amount of literature focusing on the relationship between culture and information technology.²¹ Yet, current literature about the relationship between culture and IT covers topics like IT-Offshoring²², technology acceptance²³, or general information systems (IS) research²⁴. However, the

¹⁰ Cf. Leidner/Kayworth (2006): 357.

¹¹ Cf. Taras/Rowney/Steel (2009): 357.

¹² Cf. Perkins (2009): 77.

¹³ Cf. This thesis will focus on South Korea. Due to simplicity reasons, it will just be written as Korea.

¹⁴ Cf. Debnath/Tokuda (2013): 46.

¹⁵ Cf. Tu/Kim/Sullivan (2002): 39.

¹⁶ Cf. Perkins (2009): 73.

¹⁷ Cf. Perkins (2009): 75.

¹⁸ Cf. Hofstede (2001): 230.

¹⁹ Cf. Williams (1996): 89.

²⁰ Cf. Power/Sharda/Kulkarni (2007): 3–4.

²¹ Cf. Leidner/Kayworth (2006): 357.

²² Cf. Winkler/Dibbern/Heinzl (2007)

²³ Cf. Cardon/Marshall (2008)

²⁴ Cf. Leidner/Kayworth (2006)

interrelation between culture and decision support systems (DSS), which are an essential asset for today's organizations enabling them to make faster and better decisions, remains scarce in literature.

This is problematic as globalization dramatically changes the structure of an organization; consequently, there is a need for computerized decision support systems. However, decision support systems in a global business context are difficult to deal with. In addition, there are significant differences between local and global organizations. One major difference is the geographical distribution of employees and facilities. The higher the degree of distribution of the organization, the higher is the degree of complexity. Hence, there is a strong need for sophisticated decision support, especially when the decision-making is decentralized. Another major difference are the differences in national culture of the workforce. A culturally diverse workforce can have both positive and negative effects. A possible computerized decision support system should foster the positive effects and decrease the negative ones. Consequently, as the literature remains scarce, POWER ET AL. suggest that there is a need for further research in the field of decision support systems in a global setting.²⁵

The above-mentioned challenges and importance of culture and decision support motivate this thesis to bridge the gap. As, to the best knowledge, no study has yet investigated the respective important interrelation between culture and decision support, the following two research questions arise:

RQ1: Which concepts in an organizational setting are influenced by national culture?

RQ2: How could these concepts be supported by a decision support system/information system?

This thesis pursues to enhance both IS research and practitioner body of knowledge. It fosters the theoretical investigation of the interrelation between culture, in specific national culture, and decision support systems, yet, has not been examined by prior research. Additionally, practitioner should be assisted by having a validated model that helps understanding which areas of culture could be supported by a DSS.

1.2 Structure of the Thesis

The remainder of this thesis is structured as follows: Chapter 2 and 3 address the foundation this research thesis builds upon; the concepts of culture and decision support systems are discussed in detail. Chapter 4 elaborates the scientific method used in this thesis. Chapter 5 derives the initial conceptual model and chapter 6 discusses the final conceptual model.

²⁵ Cf. Power/Sharda/Kulkarni (2007): 3–4.

Finally, chapter 7 deals with a discussion and a conclusion. At the end limitations and an outlook for further research opportunities is given.

PERNEGER AND HUDELSON (2004) suggested the IMRAD (Introduction, Method, Results And Discussion) rule of thumb to structure a manuscript. This thesis follows this structure and adds the part *foundation*, which discusses the foundation the conducted research builds upon. The structure of the thesis is depicted in the following table.

Part	Topic	Chapter
<u>I</u> ntrouction	Problem Statement	1
<u>F</u> oundations	Current Knowledge	2, 3
<u>M</u> ethod	Problem Solving Approach	4
<u>R</u> esults and	Results of Observations	5, 6
<u>D</u> iscussion	Conclusion	7

Table 1: The IFMRAD Rule of Thumb to Structure a Manuscript²⁶

²⁶ Cf. Perneger/Hudelson (2004): 191–192.

2 Concept of Culture

Central to the concept of culture is human communication. Communication and culture cannot be separated.²⁷ EDWARD T. HALL, an important culture researcher,²⁸ states that: “Culture is communication and communication is culture”.²⁹ ‘Communication’ originates from Latin ‘to make common’.³⁰ Communication is much more than the words itself.³¹ Communication is involved in any social behavior and any cultural pattern.³² Therefore, it is essential to understand the other’s perception and thinking,³³ especially in an intercultural context.

2.1 Intercultural Communication

Talking to someone, who is different to oneself, is normal in intercultural communication.³⁴ In today’s globalization, it is difficult to benefit from intercultural diversity and at the same time to reduce culture related tensions. Thus, the key to success is by fostering a sophisticated understanding of intercultural communication.³⁵ Effective intercultural communication correlates with market share, revenue and profit of an organization. Inadequate intercultural communication, therefore, leads to financial loss.³⁶

HALL and his book ‘The Silent Language’, published in 1959, can be seen as the starting point of intercultural communication research.³⁷ Today’s intercultural communication textbooks are mostly based on the US context or focus on the USA as a reference country.³⁸ However, cultural relativism is needed for an effective intercultural communication. A person should acknowledge that one’s cultural concepts might not be applicable in other cultures and therefore are relative in nature. A good intercultural communication is essential to build up intercultural knowledge.³⁹ As mentioned in the motivation of this thesis, Asian cultures are increasingly influencing Western countries and therefore intercultural research should not solely focus on the US context.

²⁷ Cf. Liu/Volčič/Gallois (2011): 2.

²⁸ Cf. Leidner/Kayworth (2006): 368.

²⁹ Hall (1990): 186.

³⁰ Cf. Liu/Volčič/Gallois (2011): 2.

³¹ Cf. Liu/Volčič/Gallois (2011): 24.

³² Cf. Liu/Volčič/Gallois (2011): 2.

³³ Cf. Liu/Volčič/Gallois (2011): 24.

³⁴ Cf. Liu/Volčič/Gallois (2011): 3.

³⁵ Cf. Liu/Volčič/Gallois (2011): 22.

³⁶ Cf. Bolchover (2012): 4.

³⁷ Cf. Liu/Volčič/Gallois (2011): 5.

³⁸ Cf. Liu/Volčič/Gallois (2011): 6.

³⁹ Cf. Liu/Volčič/Gallois (2011): 23.

2.2 Cultural Research

Intercultural research is important in today's science.⁴⁰

2.2.1 Definitions and Components of Culture

There is a plethora of definitions of the term *culture*, because the complexity is hard to capture in a simple and single definition.⁴¹ The Oxford Dictionaries define culture as “the arts and other manifestations of human intellectual achievement regarded collectively” and as “the ideas, customs, and social behaviour of a particular people or society”.⁴² This contemporary definition differs greatly from the original meaning. The word culture originated in the “mid-15c., ‘the tilling of land,’ from Middle French culture and directly from Latin cultura ‘a cultivating, agriculture,’ figuratively ‘care, culture, an honoring,’ from past participle stem of colere ‘tend, guard, cultivate, till’ The figurative sense of ‘cultivation through education’ is first attested c.1500. Meaning ‘the intellectual side of civilization’ is from 1805; that of ‘collective customs and achievements of a people’ is from 1867”.⁴³ In the early 19th century, cultural research was limited to four areas: our self, our friends, our enemy and savages.⁴⁴ Since the mid-20th century, cultural research has a different focus. Universal programming, like the ability to speak a language, is shared among all humans. Collective programming, like the ability to speak a certain language, like German or Korean, is shared among a particular group of people. Individual programming, like the unique way of speaking a language, is shared by an individual only.⁴⁵ The relationship between these three different types of programming can be seen in the following figure.

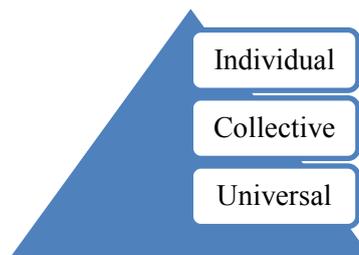


Figure 1: Three Types of Programming⁴⁶

⁴⁰ Cf. Arasaratnam (2015): 2.

⁴¹ Cf. Taras/Rowney/Steel (2009): 357.

⁴² <http://www.oxforddictionaries.com/definition/english/culture>

⁴³ <http://www.etymonline.com/index.php?term=culture>

⁴⁴ Cf. Peterson (2007): 360.

⁴⁵ Cf. Peterson (2007): 371–372.

⁴⁶ Cf. Peterson (2007): 371–372.

2.2.2 Kinds of Cultures

Culture is acquired at an unconscious level.⁴⁷ Traditions vary between cultures. Even though a wedding is a universal concept, the execution can vary significantly. Culture defines a shared identity.⁴⁸ The personal culture can be influenced by multiple kinds of cultures.⁴⁹ There are three kinds of cultures: National culture, organizational culture and individual culture.⁵⁰

Over several decades, numerous studies attempted to conceptualize culture. There are over 120 different cultural conceptualizations.⁵¹ This thesis discusses Geert Hofstede's conceptualization of culture, whose original conceptualization from 1980 is the most used one in cultural research.⁵² His definition of culture is: "Culture is the collective programming of the mind that distinguishes the members of one group or category of people from others".⁵³ Referring to three levels of mental programming, the collective programming was Hofstede's focus, especially groups that are defined through their national boundaries.⁵⁴ When national culture is linked with IT related topics, Hofstede's conceptualization is also the most used one in literature.⁵⁵

National culture and organizational culture are distinct concepts. National cultural values are acquired during the childhood whereas organizational cultural values when starting the professional life.⁵⁶ Individual culture is specific to each individual and therefore only bound to the individual.⁵⁷

2.3 Cultural Frameworks

Cultural frameworks help managers to deal with intercultural situations and to resolve misunderstandings.⁵⁸ As mentioned before, Hofstede is the most used author when culture is linked with IT related topics; therefore, in the following his dimensional model will be further discussed.

Geert Hofstede, born in 1928, studied mechanical engineering at the Delft Technical University. Alongside his work as an engineer, he studied and did his Ph.D. in social psychology. After his doctorate, he worked at IBM Europe, where he was the manager of

⁴⁷ Cf. Liu/Volčič/Gallois (2011): 22.

⁴⁸ Cf. Liu/Volčič/Gallois (2011): 2.

⁴⁹ Cf. Arasaratnam (2015): 2.

⁵⁰ Cf. Peterson (2007): 371–372.

⁵¹ Cf. Taras/Rowney/Steel (2009): 357.

⁵² Cf. Leidner/Kayworth (2006): 360.

⁵³ Hofstede/Hofstede (2005): 4.

⁵⁴ Cf. Peterson (2007): 371.

⁵⁵ Cf. Leidner/Kayworth (2006): 363.

⁵⁶ Cf. Hofstede/Hofstede (2005): 284.

⁵⁷ Cf. Peterson (2007): 375.

⁵⁸ Cf. Bolchover (2012): 11.

the human resource department.⁵⁹ While Hofstede was working at IBM, he had the chance to get access to a large amount of data. Over 116.000 surveys were produced in two survey rounds. They were conducted with employees from 72 countries and were written in 20 languages.⁶⁰ The study revealed that there are common problems, but the solutions differed among each country.⁶¹ Due to the research and the study of national cultural differences, based on the IBM employee survey, Hofstede wrote the book ‘Culture’s Consequences’.⁶² When Hofstede published his book in 1980, it had a great impact on the way national culture was viewed:

- “he successfully narrowed the concept of culture down into simple and measurable components by adopting nation-state/national culture as the basic unit of analysis;
- he established cultural values as a central force in shaping managerial behavior;
- he helped sharpen our awareness of cultural differences;
- his notion of cultural value frameworks was adopted by others involved in large scale studies”.⁶³

Four fundamental problem areas arose as a result from the IBM study:

- 1) “Social inequality, including the relationship with authority.
- 2) The relationship between the individual and the group.
- 3) Concepts of masculinity and femininity: the social and emotional implications of having been born as a boy or a girl.
- 4) Ways of dealing with uncertainty and ambiguity, which turned out to be related to the control of aggression and the expression of emotions.”⁶⁴

These four fundamental problem areas define the four dimensions of Hofstede’s cultural dimension model. Hofstede defines a dimension as an “aspect of a phenomenon that can be measured (expressed in a number)”⁶⁵ and in context of culture, a dimension “is an aspect of a culture that can be measured relative to other cultures”.⁶⁶

Power Distance Index (PDI): Power distance is based on the first problem area and is defined as follows: “the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally”⁶⁷. A

⁵⁹ Cf. Hofstede/Hofstede (2005): 435.

⁶⁰ Cf. Hofstede (2001): 41.

⁶¹ Cf. Hofstede/Hofstede (2005): 23.

⁶² Cf. Hofstede/Hofstede (2005): IX.

⁶³ Bird/Fang (2009): 140.

⁶⁴ Hofstede/Hofstede (2005): 23.

⁶⁵ Hofstede/Hofstede (2005): 400.

⁶⁶ Hofstede/Hofstede (2005): 23.

⁶⁷ Hofstede/Hofstede (2005): 402.

high score on this dimension stands for a large power distance whereas a low score stands for a small power distance.⁶⁸

Individualism versus Collectivism (IDV): Individualism is based on the second problem area and is defined through the following two definitions: “Individualism stands for a society in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family only”.⁶⁹ “Collectivism stands for a society in which people from birth onward are integrated into strong, cohesive in-groups, which throughout people’s lifetime continue to protect them in exchange for unquestioning loyalty”⁷⁰. A high score on this dimension stands for individualism distance whereas a low score stands for collectivism.⁷¹

Masculinity versus Femininity (MAS): Masculinity is based on the third problem area and is defined through the following two definitions: “Masculinity stands for a society in which emotional gender roles are clearly distinct: men are supposed to be assertive, tough, and focused on material success; women are supposed to be more modest, tender, and concerned with the quality of life”⁷². “Femininity stands for a society in which emotional gender roles overlap: both men and women are supposed to be modest, tender, and concerned with the quality of life”⁷³. A high score on this dimension stands for masculinity whereas a low score stands for femininity.⁷⁴

Uncertainty Avoidance Index (UAI): Uncertainty avoidance is based on the fourth problem area and is defined as follows: “the extent to which the members of a culture feel threatened by ambiguous or unknown situations”⁷⁵. A high score on this dimension stands for strong uncertainty avoidance whereas a low score stands for weak uncertainty avoidance.⁷⁶

Nowadays, the dimension model consists of six dimensions. The initial questionnaire of the IBM study was Western biased. As a consequence, the dimension **Long-term versus Short-term orientation (LTO)** was introduced in 1991.⁷⁷

Long-term versus Short-term orientation: “Long-term orientation stands for the fostering of virtues oriented toward future rewards – in particular, perseverance and thrift.

⁶⁸ Cf. Hofstede/Hofstede/Minkov (2010): 56–59.

⁶⁹ Hofstede/Hofstede (2005): 401.

⁷⁰ Hofstede/Hofstede (2005): 399.

⁷¹ Cf. Hofstede/Hofstede/Minkov (2010): 94–97.

⁷² Hofstede/Hofstede (2005): 402.

⁷³ Hofstede/Hofstede (2005): 401.

⁷⁴ Cf. Hofstede/Hofstede/Minkov (2010): 140–142.

⁷⁵ Hofstede/Hofstede (2005): 403.

⁷⁶ Cf. Hofstede/Hofstede/Minkov (2010): 192–195.

⁷⁷ Cf. Hofstede/Hofstede/Minkov (2010): 239.

Its opposite pole, short-term orientation, stands for the fostering of virtues related to the past and present – in particular, respect for tradition, preservation of ‘face,’ and fulfilling social obligations.”⁷⁸

After further studies, the sixth dimension, **Indulgence versus Restraint** (IND / IVR), was added to the dimension model.⁷⁹

Indulgence versus Restraint: “Indulgence stands for a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. Restraint stands for a society that suppresses gratification of needs and regulates it by means of strict social norms.”⁸⁰

Apart from Hofstede’s Model, as mentioned before, there are many other conceptualizations with a different focus on culture. The focus of this thesis is not on the models themselves, so further models will not be discussed.

The biggest challenge for today and future leaders is the fast changing and dynamic world.⁸¹ Consequently, cultural models or frameworks can only be one tool of many. A good management knowledge, especially with focus on international management, is an essential asset for today’s manager.⁸²

2.4 International Management

MINTZBERG proposed in 2008 a study that managers could be categorized in ten different roles.⁸³ In the following, the ten major roles are shown:

⁷⁸ Hofstede/Hofstede/Minkov (2010): 239.

⁷⁹ Cf. Hofstede/Hofstede/Minkov (2010): 281.

⁸⁰ <https://geert-hofstede.com/national-culture.html>

⁸¹ Cf. Mendenhall/Bird (2013): 167.

⁸² Cf. Haghirian (2011): 16–17.

⁸³ Cf. Turban et al. (2011): 7.

Role	Description
Interpersonal Figurehead	Is symbolic head; obliged to perform a number of routine duties of a legal or social nature
Leader	Is responsible for the motivation and activation of subordinates; responsible for staffing, training, and associated duties
Liaison	Maintains self-developed network of outside contacts and informers who provide favors and information
Informational Monitor	Seeks and receives a wide variety of special information (much of it current) to develop a thorough understanding of the organization and environment; emerges as the nerve center of the organization's internal and external information
Disseminator	Transmits information received from outsiders or from subordinates to members of the organization; some of this information is factual, and some involves interpretation and integration
Spokesperson	Transmits information to outsiders about the organization's plans, policies, actions, results, and so forth; serves as an expert on the organization's industry
Decisional Entrepreneur	Searches the organization and its environment for opportunities and initiates improvement projects to bring about change; supervises design of certain projects
Disturbance Handler	Is responsible for corrective action when the organization faces important, unexpected disturbances
Resource Allocator	Is responsible for the allocation of organizational resources of all kinds; in effect, is responsible for the making or approval of all significant organizational decisions
Negotiator	Is responsible for representing the organization at major negotiations

Table 2: Mintzberg's Ten Managerial Roles⁸⁴

In addition to the versatile roles, it has to be considered that today's multicultural environment is highly influenced by the increasing flow of people working and travelling abroad.⁸⁵ Modern transportation makes it possible to travel and work anywhere in the world within hours.⁸⁶ Thus, today's organizations need to deal with global relationships.⁸⁷

2.4.1 Globalization

Even though the term 'global' seems simple and appears to have just a single understanding, many people have, whatsoever, a very different perspective on the term. People think that the nature of business itself is international and therefore global, others think that it is just global when someone interacts with people from other countries, etc.⁸⁸

⁸⁴ Cf. Turban et al. (2011): 8.

⁸⁵ Cf. Liu/Volčič/Gallois (2011): 18.

⁸⁶ Cf. Liu/Volčič/Gallois (2011): 14.

⁸⁷ Cf. Bolchover (2012): 3.

⁸⁸ Cf. Mendenhall/Bird (2013): 168.

No matter the exact definition, the globalization is steadily rising and organizations expand their business into unfamiliar and new markets. Cultural differences hamper the success; therefore, organizations prefer new markets that have a similar culture.⁸⁹ However, economic downturns⁹⁰ and global competitive pressure makes organizations also expand into markets that have a rather distant culture.⁹¹ When entering new markets differences in culture and language are major obstacles.⁹²

Developed countries look for new customers and new skilled employees abroad, whereas developing countries look for new markets to expend their businesses. This fosters the globalization continuously.⁹³ Globalization is not solely about organizations, governments also need to create an environment that eases foreign companies to invest and employees to have better chances to enter foreign countries.⁹⁴

2.4.2 Managing Diversity

Integrating cultures is an issue for today's businesses.⁹⁵ In today's organizations, having international employees, the workforce diversity is considered as one of the main challenges when managing human resources. Even though the diversity in a workforce has a strategic importance, the models that are used in this field consider the employees as a homogeneous and generic category.⁹⁶

The quality of managing cultural diversity greatly determines the success.⁹⁷ In addition, when selecting an international partner cultural factors play an important role.⁹⁸ Cross border activities can reduce cost and improve competitiveness of an organization; however, cross border management is challenging and complex.⁹⁹

Organizations usually choose foreign countries with a similar culture for their international expansions.¹⁰⁰ When organizations expand to a country that has a similar culture, organizations, usually, foster the same strategy (e.g. same website design) as their home country. However, even though the cultures seem similar in the first place, the preferences and responses to a certain strategy can greatly differ.¹⁰¹ Both for technical and relationally

⁸⁹ Cf. Bolchover (2012): 5–6.

⁹⁰ Cf. Bolchover (2012): 3.

⁹¹ Cf. Bolchover (2012): 7.

⁹² Cf. Bolchover (2012): 4.

⁹³ Cf. Bolchover (2012): 3.

⁹⁴ Cf. Bolchover (2012): 7.

⁹⁵ Cf. Wang/Solan/Xu (2014): 93.

⁹⁶ Cf. Alcázar/Fernández, Pedro Miguel Romero/Gardey (2013): 39.

⁹⁷ Cf. Heinzl/Leidner (2012): 109.

⁹⁸ Cf. van Winter/College (2015): 8.

⁹⁹ Cf. Wang/Solan/Xu (2014): 93.

¹⁰⁰ Cf. Belanche Gracia/Casaló Ariño/Guinaliu Blasco (2015): 275.

¹⁰¹ Cf. Belanche Gracia/Casaló Ariño/Guinaliu Blasco (2015): 276.

projects are getting increasingly more internationally and complex.¹⁰² In international projects, it is important to have:

- “common understanding (the issue of interpretive schemas and congruent sensemaking),
- trust and commitment (to foster a common communication base for cultural sensemaking) and
- appreciation of interdependency (the issue of securing behaviours conducive to performance enhancement, including accommodation of organisational/national cultural differences)”¹⁰³

Hence, for organizations with international activities, effective intercultural collaboration and communication is a key factor to financial success.¹⁰⁴

2.4.3 Importance of Appropriate Dealing with Culture

If diversity is not dealt with caution, it can threaten the organizational goal.¹⁰⁵ Organizations need to foster their cultural sensitivity and intercultural communication in order to be successful in the age of globalization. However, these measures remain scarce in many organizations.¹⁰⁶ Even though organizations admit that culture is a key factor of their competitiveness, they do not take enough measures to mitigate the risks of inappropriate handling.¹⁰⁷ The financial loss of inadequate intercultural communication and collaboration can be quantified.¹⁰⁸ A recent study by The Economist Intelligence Unit, conducted in 2012 with 572 executives worldwide,¹⁰⁹ revealed that culture is not assessed appropriately enough and that there is a need for improving intercultural, language and communication skills of their employees.¹¹⁰ Thus, a culture specific strategy should be fostered in today’s organizations.¹¹¹

Sophisticated knowledge about the local culture is essential in order to be successful in the unfamiliar country.¹¹² Global communication needs a proper competence.¹¹³ Intercultural skills of the employees have a similar important impact on success compared to the right

¹⁰² Cf. Fellows/Liu (2015): 246.

¹⁰³ Fellows/Liu (2015): 252.

¹⁰⁴ Cf. Bolchover (2012): 4.

¹⁰⁵ Cf. Bolchover (2012): 9.

¹⁰⁶ Cf. Bolchover (2012): 3.

¹⁰⁷ Cf. Bolchover (2012): 13.

¹⁰⁸ Cf. Bolchover (2012): 18.

¹⁰⁹ Cf. Bolchover (2012): 2.

¹¹⁰ Cf. Bolchover (2012): 12–13.

¹¹¹ Cf. Belanche Gracia/Casaló Ariño/Guinalú Blasco (2015): 288–289.

¹¹² Cf. Bolchover (2012): 8–9.

¹¹³ Cf. Liu/Volčič/Gallois (2011): 3.

strategy, etc.¹¹⁴ Even though organizations understand that inadequate intercultural skills of their employees lead to low organizational performance, yet, many organizations still do not take enough measures improving these skills.¹¹⁵

2.4.4 Intercultural Skills

There is a need for intercultural skills in today's society.¹¹⁶ Intercultural competence is important in every business domain in today's globalization.¹¹⁷ When dealing with international teams, intercultural communication competence is an important skill in today's business world.¹¹⁸

In today's business and research world, there is a steadily rising interest in the field of intercultural competence.¹¹⁹ Intercultural competence research is, more than ever before, an important field in today's business research.¹²⁰ However, even after decades of intercultural communication competence, it is still hard to define a comprehensive and satisfactory conceptualization.¹²¹ Nevertheless, more and more business domains (e.g. business, education, etc.) include intercultural competence in their standards.¹²² Intercultural skills are not naturally given, but can be learned.¹²³ Typical problems for people working abroad are lack of communication skills, attitudes problems (e.g. mistrust, etc.) and conflicts in expectations.¹²⁴ Due to the cognitive differences, two professionals (e.g. generalists vs. specialists) differently earn intercultural competencies.¹²⁵ Intercultural competence cannot be fully accomplished; therefore, it is a lifelong process.¹²⁶ Acquiring of intercultural competence is lifelong and, consequently, highly individual.¹²⁷ However, just going abroad does not necessarily result in a positive intercultural competence.¹²⁸

Even though acquiring intercultural competence is challenging for managers, they should go the 'extra mile' to understand the uniqueness of the culture and environment they are dealing with. Deep intercultural competence is essential, however, it is contra productive if leaders 'go native' and behave 'too' local. In that case, the leader loses his authenticity and this often leads to distrust and confusion among subordinates. Therefore, foreign

¹¹⁴ Cf. Bolchover (2012): 8.

¹¹⁵ Cf. Bolchover (2012): 4.

¹¹⁶ Cf. Liu/Volčič/Gallois (2011): 3.

¹¹⁷ Cf. Deardorff (2015): 3.

¹¹⁸ Cf. Chi/Suthers (2015): 108.

¹¹⁹ Cf. Koester/Lustig (2015): 20.

¹²⁰ Cf. Collier (2015): 9.

¹²¹ Cf. Martin (2015): 6.

¹²² Cf. Deardorff (2015): 3.

¹²³ Cf. Liu/Volčič/Gallois (2011): 3.

¹²⁴ Cf. Liu/Volčič/Gallois (2011): 17.

¹²⁵ Cf. Rasmussen/Sieck (2015): 76.

¹²⁶ Cf. Deardorff (2015): 4.

¹²⁷ Cf. Jackson (2015): 92.

¹²⁸ Cf. Jackson (2015): 91.

leaders are often chosen due to their radical different style of leadership compared to local leaders. The key to success for global managers is not to imitate local behavior, but to get a sophisticated understanding about local conditions. It is even more important to act authentically that is suitable for local expectations. Being unique can have positive connotations as long as personal values are not contradictory to local expectations and cultural values. The better the understanding and skills dealing with cultural differences the higher the probability of success of the managers and leaders.¹²⁹

2.4.5 Leadership as a Cultural Construct

It is essential that leadership is inseparable with the culture it is exercised in and, therefore, leadership should change accordingly. Additionally, leadership is not a Western ‘invention’ that can be exercised easily in any culture around the world. In Western cultures, a leader is often perceived positively and seen as an admired and respected person. However, this is not the case in other cultures. Leaders are seen with fear of power and distrust or the dislike of privileges. Interestingly, the translation in other languages of the term ‘leader’ shows a great variety in connotations: first among equals, expert, parent or even dictator. Similarly, the terms ‘subordinate’ and ‘follower’ have versatile meanings. So all terms should be used with caution when using different languages.¹³⁰

The problem about the term ‘leader’ is not only with respect to language; there is also a great difference with regard to the kind of a leader. In individualistic cultures, the leader is a single person, whereas in collectivistic culture the leader is more associated with group endeavors. In hierarchical societies, a leader is apart and separate from his followers, whereas in egalitarian cultures the leader is less intimidating and more approachable. Different people have a different understand of the term leadership. In Western cultures, the success is often accredited to the leader, whereas in ancient East Asian thinking it is quite different¹³¹: “A leader is best when people barely know he exists, who talks little, and when his work is done and his aim fulfilled, people will say, we did this ourselves.”¹³²

Therefore, managerial philosophies differ between cultures.¹³³ When Western leaders deal with East Asian leaders, they are often frustrated and confused. Western leaders often think that East Asian leaders do not behave like a ‘leader’. However, these Western leaders misunderstand that both leadership came from two different ways of thinking. Western leadership principles go back to ancient Greek traditions, whereas East Asian leadership

¹²⁹ Cf. Sanchez-Runde/Nardon/Steers (2011): 212.

¹³⁰ Cf. Sanchez-Runde/Nardon/Steers (2011): 209.

¹³¹ Cf. Sanchez-Runde/Nardon/Steers (2011): 209.

¹³² Sanchez-Runde/Nardon/Steers (2011): 209.

¹³³ Cf. Wang/Solan/Xu (2014): 93.

principles go back to ancient Chinese traditions.¹³⁴ The contrasting of both principles can be seen in the following table:

	Western Traditions	East Asian Traditions
Leadership beliefs	Seek to achieve ideal end states (éidos and télos)	Seek to balance countervailing forces (ying and yang)
Leadership goals	Establish and pursue aspirational goals; manage the results	Create conditions conducive to success; manage the process
Leadership logic	Logic of application; articulate objectives and determine reasonable means to desired ends	Logic of exploitation; place oneself in a position to exploit opportunities as they emerge
Leadership bias	Bias for action; capture the initiative	Bias for patience; let events come to you

Table 3: Western and East Asian Traditions ¹³⁵

This table shows that Western and East Asian follow different patterns in terms of behavior. Western leaders focus on acting, whereas East Asian leaders focus on transforming.¹³⁶

Consequently, a successful global leader has to deal with many expectations. This includes the expectation of the leader himself, coworkers, subordinates, local circumstances and the society. By doing so, it is essential not only to understand the ‘what’ and ‘who’, but also to understand the ‘why’ and ‘how’. This is especially important, as the specifics and the behavior of a leader greatly differs among cultures dealing with this.¹³⁷ Multicultural teams make both extreme, excellent and poor, performances become more probable.¹³⁸ Multicultural teams offer three advantages: First, group conformity is not a major issue, which often appears in groups of similar people. Second, they have a higher variety of problem solving methods and therefore produce solutions that are more versatile. Third, they have a broader view on global trends.¹³⁹ A multicultural team that has no to little intercultural competence is more likely to experience miscommunication and conflicts.¹⁴⁰ Therefore, Today’s executives are in need of managers that have global perspective and can effectively operate on a global level.¹⁴¹

¹³⁴ Cf. Sanchez-Runde/Nardon/Steers (2011): 209–210.

¹³⁵ Cf. Sanchez-Runde/Nardon/Steers (2011): 210.

¹³⁶ Cf. Sanchez-Runde/Nardon/Steers (2011): 211.

¹³⁷ Cf. Sanchez-Runde/Nardon/Steers (2011): 209.

¹³⁸ Cf. Bolchover (2012): 10.

¹³⁹ Cf. Bolchover (2012): 9.

¹⁴⁰ Cf. Liu/Volčič/Gallois (2011): 24.

¹⁴¹ Cf. Mendenhall/Bird (2013): 167.

2.4.6 Global Leadership

The term ‘global leadership’ became important for organizations in the late 1990s. The experiences of organizations to develop effective global leaders is still mostly disappointing. The problem, why organizations have little success having effective global leaders, is that they do not utilize what research suggesting them to do.¹⁴² The two main reasons why organizations fail to have successful global leaders is “failing to understand what global leadership is” and “failing to understand the core competencies of global leadership”.¹⁴³

Einstein once said: “if he had one hour to save the world he would spend fifty-five minutes defining the problem and only five minutes finding the solution.” And: “the quality of the solutions we come up with will be in direct proportion to the quality of the description of the problem we’re trying to solve.”¹⁴⁴ There are two important focuses that would advance the leadership success: First, it is important to understand “the meaning of leadership as a cultural construct” and, second, it is important to take “the variations in local expectations regarding leader behavior” into account.¹⁴⁵ Therefore, organizations should not solely focus on Western biased leadership models and foster a more global and culturally open-minded thinking.¹⁴⁶ Organizations do not invest enough time to educate their managers appropriately to become global leaders and therefore have disappointing results.¹⁴⁷

It is highly useful that managers think more about which leadership approach they believe in;¹⁴⁸ generally, there are three contemporary approaches to global leadership.¹⁴⁹ They are depicted in the following figure.

¹⁴² Cf. Mendenhall/Bird (2013): 167.

¹⁴³ Mendenhall/Bird (2013): 167, 171.

¹⁴⁴ Mendenhall/Bird (2013): 167.

¹⁴⁵ Sanchez-Runde/Nardon/Steers (2011): 209.

¹⁴⁶ Cf. Sanchez-Runde/Nardon/Steers (2011): 209.

¹⁴⁷ Cf. Mendenhall/Bird (2013): 167.

¹⁴⁸ Cf. Sanchez-Runde/Nardon/Steers (2011): 212.

¹⁴⁹ Cf. Sanchez-Runde/Nardon/Steers (2011): 207.

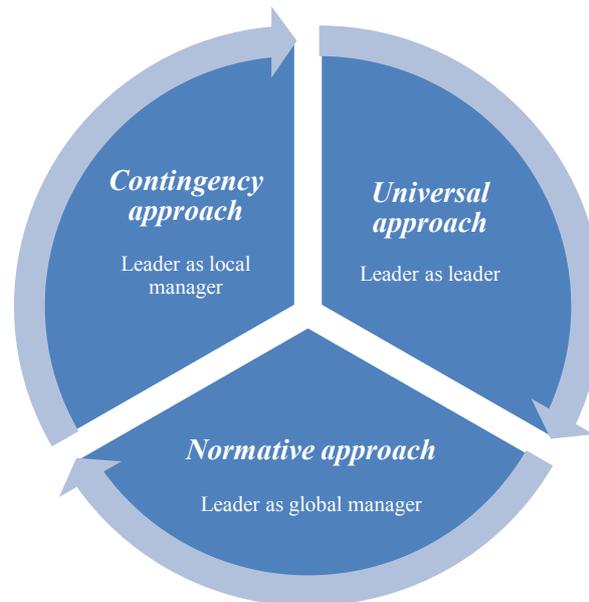


Figure 2: Contemporary Approaches to Global Leadership¹⁵⁰

The **universal approach** assumes that leadership is a universal or generalizable behavior no matter in which culture it is exercised. The **normative approach** assumes that leadership is characterized through abilities and personal skills of an effective global manager. The **contingency approach** assumes that effective leadership has no universalities when describing it.¹⁵¹

These three approaches all add value in understanding leadership in an international context; however, all fail by not appreciating the global diversity sufficiently. Therefore, these approaches are limited in helping leaders in international contexts.¹⁵² Consequently, this thesis tries to bridge the gap by utilizing IT support by making better and faster decisions in an international and intercultural setting.

Germany and Korea are chosen as exemplary countries for this thesis, as they have a similar history (separation into two different countries) and being economically important countries of their respective continents.

2.5 Foundation about Germany and Korea and Their Cultures

This chapter will elaborate on the national flags, the geography, the historical development, the economic system and societal situation, and lastly the German and Korean culture through the lens of Hofstede's model.

¹⁵⁰ Cf. Sanchez-Runde/Nardon/Steers (2011): 208.

¹⁵¹ Cf. Sanchez-Runde/Nardon/Steers (2011): 207–208.

¹⁵² Cf. Sanchez-Runde/Nardon/Steers (2011): 209.

2.5.1 National Flags of Germany and Korea

The following figure shows their respective national flags.

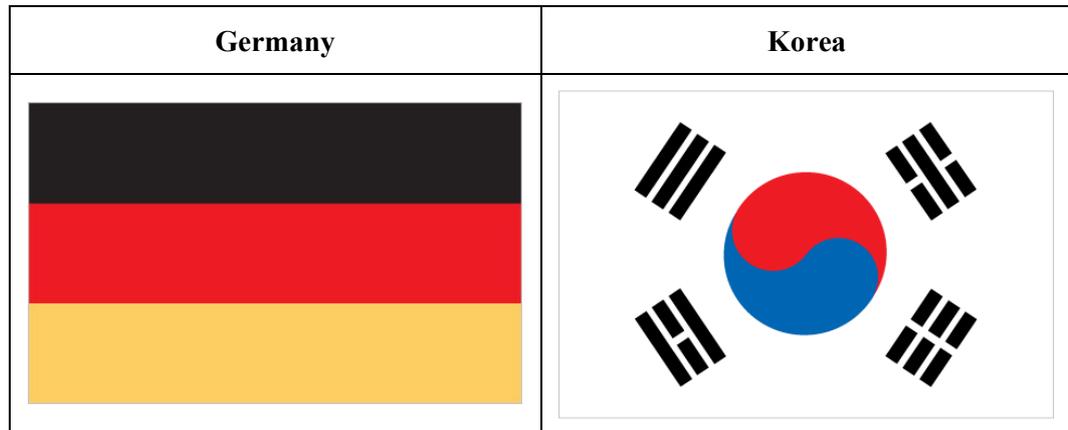


Table 4: Flags of Germany¹⁵³ and Korea¹⁵⁴

German flag: “Three equal horizontal bands of black (top), red, and gold; these colors have played an important role in German history and can be traced back to the medieval banner of the Holy Roman Emperor - a black eagle with red claws and beak on a gold field”¹⁵⁵

Korean flag: “White with a red (top) and blue yin-yang symbol in the center; there is a different black trigram from the ancient I Ching (Book of Changes) in each corner of the white field; the South Korean national flag is called Taegukki; white is a traditional Korean color and represents peace and purity; the blue section represents the negative cosmic forces of the yin, while the red symbolizes the opposite positive forces of the yang; each trigram (kwae) denotes one of the four universal elements, which together express the principle of movement and harmony”¹⁵⁶

2.5.2 Geography

Geographical or political borders have separated countries since ancient times.¹⁵⁷ The internet made it possible to easily overcome national borders and to let people from the other part of the world to have a face-to-face communication.¹⁵⁸ The globalization breaks down the boundaries between East and West.¹⁵⁹ The following table shows the geographical situation of Germany and Korea.

¹⁵³ <https://www.cia.gov/library/publications/the-world-factbook/geos/gm.html>

¹⁵⁴ <https://www.cia.gov/library/publications/the-world-factbook/geos/ks.html>

¹⁵⁵ <https://www.cia.gov/library/publications/the-world-factbook/geos/gm.html>

¹⁵⁶ <https://www.cia.gov/library/publications/the-world-factbook/geos/ks.html>

¹⁵⁷ Cf. Liu/Volčič/Gallois (2011): 1.

¹⁵⁸ Cf. Liu/Volčič/Gallois (2011): 2–3.

¹⁵⁹ Cf. Liu/Volčič/Gallois (2011): 13.

Germany	Korea
	
	
<p>Central Europe, bordering the Baltic Sea and the North Sea, between the Netherlands and Poland, south of Denmark</p>	<p>Eastern Asia, southern half of the Korean Peninsula bordering the Sea of Japan and the Yellow Sea</p>

Table 5: Geographical Information about Germany¹⁶⁰ and Korea¹⁶¹

The following table shows the top five cities of Germany and Korea in terms of population.

¹⁶⁰ <https://www.cia.gov/library/publications/the-world-factbook/geos/gm.html>

¹⁶¹ <https://www.cia.gov/library/publications/the-world-factbook/geos/ks.html>

	Germany		Korea	
	Name	Population	Name	Population
	<i>Total</i>	<i>82,17</i>	<i>Total</i>	<i>51,06</i>
1 st	Berlin	3,52	Seoul	9,90
2 nd	Hamburg	1,78	Busan	3,44
3 rd	München	1,45	Incheon	2,89
4 th	Köln	1,06	Daegu	2,46
5 th	Frankfurt a. M.	0,73	Daejeon	1,53

Table 6: Population (in Million) of Top Five Cities in Germany¹⁶² and Korea¹⁶³

2.5.3 Historical Development

The following two paragraphs discuss the respective historical development.

German historical development: “As Europe's largest economy and second most populous nation (after Russia), Germany is a key member of the continent's economic, political, and defense organizations. European power struggles immersed Germany in two devastating World Wars in the first half of the 20th century and left the country occupied by the victorious Allied powers of the US, UK, France, and the Soviet Union in 1945. With the advent of the Cold War, two German states were formed in 1949: the western Federal Republic of Germany (FRG) and the eastern German Democratic Republic (GDR). The democratic FRG embedded itself in key western economic and security organizations, the EC, which became the EU, and NATO, while the communist GDR was on the front line of the Soviet-led Warsaw Pact. The decline of the USSR and the end of the Cold War allowed for German unification in 1990. Since then, Germany has expended considerable funds to bring eastern productivity and wages up to western standards. In January 1999, Germany and 10 other EU countries introduced a common European exchange currency, the euro.”¹⁶⁴

Korean historical development: “An independent kingdom for much of its long history, Korea was occupied by Japan beginning in 1905 following the Russo-Japanese War. In 1910, Tokyo formally annexed the entire Peninsula. Korea regained its independence following Japan's surrender to the US in 1945. After World War II, a democratic-based government (Republic of Korea, ROK) was set up in the southern half of the Korean Peninsula while a communist-style government was installed in the north (Democratic People's Republic of Korea, DPRK). During the Korean War (1950-53), US troops and UN forces fought alongside ROK soldiers to defend South Korea from a DPRK invasion

¹⁶² <https://www.citypopulation.de/Deutschland-Cities.html>

¹⁶³ http://kosis.kr/eng/statisticsList/statisticsList_01List.jsp?vwcd=MT_ETITLE&parentId=A#SubCont

¹⁶⁴ <https://www.cia.gov/library/publications/the-world-factbook/geos/gm.html>

supported by China and the Soviet Union. A 1953 armistice split the Peninsula along a demilitarized zone at about the 38th parallel. PARK Chung-hee took over leadership of the country in a 1961 coup. During his regime, from 1961 to 1979, South Korea achieved rapid economic growth, with per capita income rising to roughly 17 times the level of North Korea.¹⁶⁵

2.5.4 Economic System and Societal Situation

A country's financial development is greatly influenced by culture.¹⁶⁶ As Germany has a similar history in rebuilding their country, Koreans greatly respect Germany as being also successful in rebuilding.¹⁶⁷ After the Korean War, Korea used to be one of the poorest countries of the world. Nowadays it is an internationally important industry nation.¹⁶⁸ In the following figure, the development of the GDP of Germany and Korea from 1970 to 2015 is depicted.

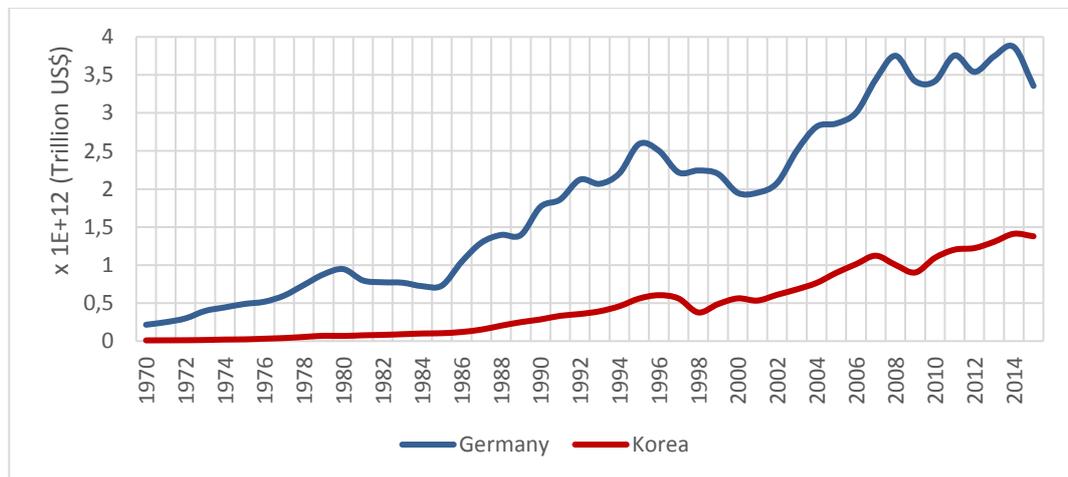


Figure 3: GDP of Germany and Korea¹⁶⁹

As Germany Korea has also a demographic problem, as the birth rates are the lowest of the world.¹⁷⁰ Both Germany and Korea have on the one hand an increasing life expectancy, but on the other hand a declining fertility rate.¹⁷¹ The development of the birth rates is shown in the following figure.

¹⁶⁵ <https://www.cia.gov/library/publications/the-world-factbook/geos/ks.html>

¹⁶⁶ Cf. Dutta/Mukherjee (2012): 589.

¹⁶⁷ Cf. Kim (2014): 57.

¹⁶⁸ Cf. Kim (2014): 56.

¹⁶⁹ <http://data.worldbank.org/indicator/NY.GDP.MKTP.CD>

¹⁷⁰ Cf. Kim (2014): 64.

¹⁷¹ Cf. Rhee/Done/Anderson (2015): 1319.

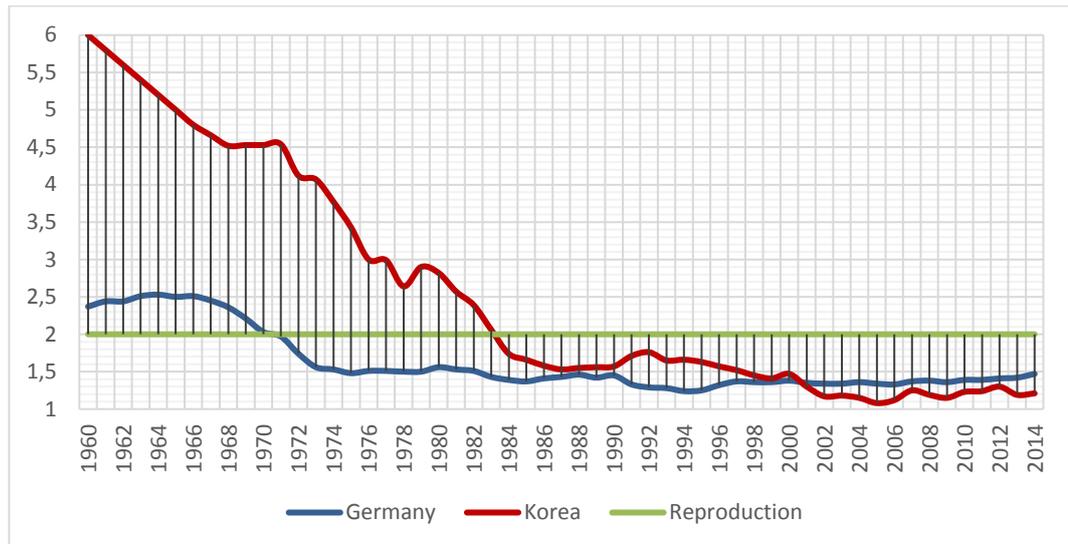


Figure 4: Fertility Rates of Germany and Korea (1960-2014)¹⁷²

Germany went below the reproduction line in 1970/71 and Korea went below in 1983/84. Obviously, both Germany and Korea have problems in reproducing their own population and therefore encounter major problems. One problem is the supply of the working population. The longer a country has a birth rate below two, the more severe the problem it gets. Therefore, in order to maintain the current level of productivity of both countries, Germany and Korea have to bring foreigners into their country to counteract this birth rate deficit. The side effect, obviously, is that both countries more and more have to deal with diverse cultures in future. This is because just bringing in foreigners does not solve the problem; an effective teamwork is the key to success. Consequently, there is an essential need for intercultural skills and competence.¹⁷³

2.5.5 Hofstede's Cultural Dimension Model (Germany and Korea)

Using Hofstede's model as a lens looking at the characteristics of the German and Korean culture, the following figure depicts the respective scores of each dimension. The scores provide only relative positions to the other countries and not absolute positions.¹⁷⁴

¹⁷² <https://data.oecd.org/pop/fertility-rates.htm>

¹⁷³ Cf. Liu/Volčič/Gallois (2011): 3.

¹⁷⁴ Cf. Hofstede (2001): 36.

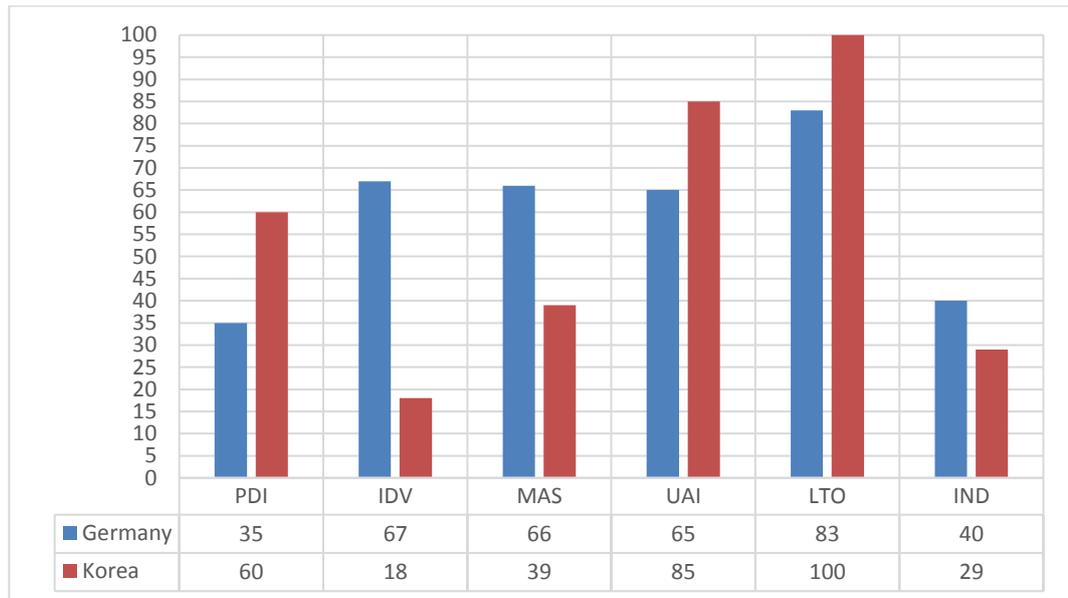


Figure 5: Hofstede's Dimension Model, Comparison of Germany¹⁷⁵ and Korea¹⁷⁶

On each dimension, the German and Korean culture show differences in terms of scores.

In addition, when doing business with an East Asian organization or working with East Asian employees it is a necessity to have an idea of how East Asians do business.¹⁷⁷

Compared with other organizations around the world, Korean ones are unique.¹⁷⁸

Obviously, this makes it more difficult to make decisions, which IT tries to support.

¹⁷⁵ <https://geert-hofstede.com/germany.html>

¹⁷⁶ <https://geert-hofstede.com/south-korea.html>

¹⁷⁷ Cf. Firkola (2006): 115.

¹⁷⁸ Cf. Debnath/Tokuda (2013): 45.

3 Concept of Decision Support Systems

Today's organizations have to face an ever-rising complexity and require making frequent and quick decisions. Sufficient data, information and knowledge are needed being able to come to sophisticated decisions. Consequently, some decisions need computer support in order to offer quick responses.¹⁷⁹ Organizations are doing business in a specific business environment.¹⁸⁰

3.1 Business Environment

This environment has factors that pressures the organization constantly. Organizations take actions to counter these factors.¹⁸¹ The following imagine depicts this situation.

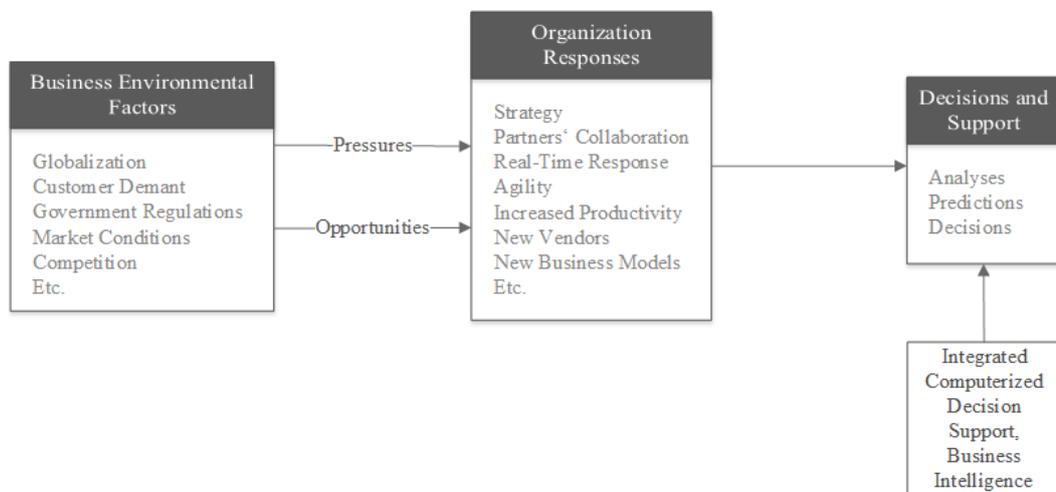


Figure 6: The Business Pressures- Responses-Support Model¹⁸²

Business environmental factors are, on the one hand, opportunities, but also pressures to the organization. In addition, as shown in the figure, globalization is one of the business environmental factors that both offer opportunities and pressures to organizations. Dealing with that, organizations use integrated computerized decision support.¹⁸³ IT makes globalization culturally diverse. IT and modern transportation make the world smaller, but also foster misunderstandings.¹⁸⁴ This supports the idea of this thesis that computerized decision support could be used in order to face globalization and as a consequence to face national cultures.

Regardless of a decision support, decision makers follow a certain pattern of their decision making process.¹⁸⁵

¹⁷⁹ Cf. Turban et al. (2011): 2.

¹⁸⁰ Cf. Turban et al. (2011): 5.

¹⁸¹ Cf. Turban et al. (2011): 5.

¹⁸² Cf. Turban et al. (2011): 5.

¹⁸³ Cf. Turban et al. (2011): 5.

¹⁸⁴ Cf. Liu/Volčić/Gallois (2011): 14.

¹⁸⁵ Cf. Turban et al. (2011): 8.

3.2 Phases of the Decision-Making Process

Decision makers usually follow four steps to come to a decision:

- 1) “Define the problem (i.e., a decision situation that may deal with some difficulty or with an opportunity).
- 2) Construct a model that describes the real-world problem.
- 3) Identify possible solutions to the modeled problem and evaluate the solutions.
- 4) Compare, choose, and recommend a potential solution to the problem.”¹⁸⁶

This can be structured into four categories:

- **“Intelligence.** This phase involves searching for conditions that call for decisions.
- **Design.** This phase involves inventing, developing, and analyzing possible alternative courses of action (solutions).
- **Choice.** This phase involves selecting a course of action from among those available.
- **Implementation.** This phase involves adapting the selected course of action to the decision situation (i.e., problem solving or opportunity exploiting).”¹⁸⁷

Sufficient and fast information is needed to perform well. In order to ensure this information delivery and to have a good decision-making, computerized decision-making is more and more used.¹⁸⁸ One reason why computerized decision support is used is to close the gap between the current performance and the desired performance.¹⁸⁹

3.3 Computerized Support for Decision-Making

The capabilities of computerized were steadily rising over the last decades. They have moved from simple tasks (i.e. monitoring activities) to complete solution applications (i.e. data mining).¹⁹⁰ Computerized support for decision-making has several capabilities:

- Speedy computations
- Improved communications and collaboration
- Increased productivity of group members
- Improved data management
- Managing giant data warehouses
- Quality support

¹⁸⁶ Turban et al. (2011): 8.

¹⁸⁷ Turban et al. (2011): 12.

¹⁸⁸ Cf. Turban et al. (2011): 7.

¹⁸⁹ Cf. Turban et al. (2011): 6.

¹⁹⁰ Cf. Turban et al. (2011): 9.

- Agility support
- Overcoming cognitive limits in processing and storing information
- Using the web
- Anywhere, anytime support¹⁹¹

The field of computerized support shaped several concepts that have different focuses on the previously mentioned phases of the decision-making process.¹⁹² The following figure depicts these different focuses.

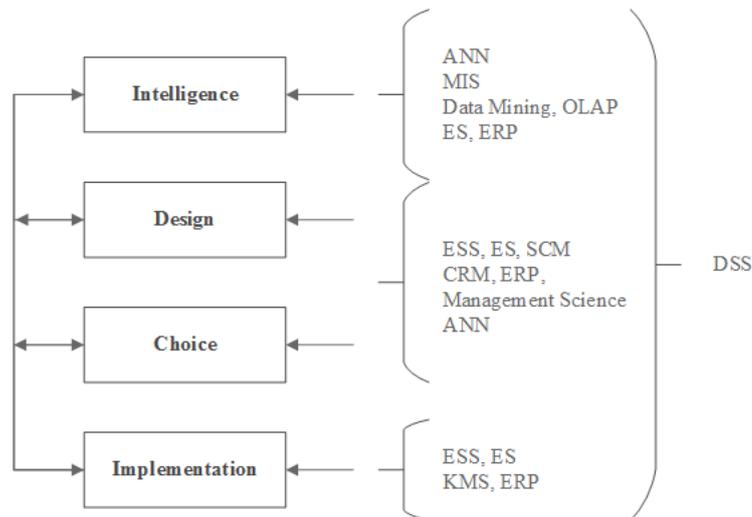


Figure 7: DSS Support¹⁹³

One of the concepts that supports all phases are *Decision Support Systems*, which is the focus of this thesis and is discussed in the following chapters.

3.4 Foundation of Decision Support Systems

In literature, there is no consensus about the definition regarding what a DSS exactly is, as it has different focuses.¹⁹⁴ However, a prominent definition is from POWER is: “A DSS is an interactive computer-based system or subsystem intended to help decision makers use communications technologies, data, documents, knowledge and/or models to identify and solve problems, complete decision process tasks, and make decisions. Decision Support System is a general term for any computer application that enhances a person or group’s ability to make decisions. Also, Decision Support Systems refers to an academic field of research that involves designing and studying Decision Support Systems in their context of use. In general, Decision Support Systems are a class of computerized information system that support decision-making activities”.¹⁹⁵

¹⁹¹ Cf. Turban et al. (2011): 9–10.

¹⁹² Cf. Turban et al. (2011): 59.

¹⁹³ Cf. Turban et al. (2011): 59.

¹⁹⁴ Cf. Power (2013): 19.

¹⁹⁵ <http://dssresources.com/>

3.4.1 Computerized Tools for Decision Support

No matter how to name the concept of computerized decision support, the objective is to support the management in solving their organizational or managerial problems, and in assessing strategies and opportunities. The focus is on being better and faster than without computers.¹⁹⁶ In the following, possible computerized tools for decision support are shown.

Tool Category	Tools
Data Management	Databases and database management system Extraction, transformation, and load systems Data Warehouses, real-time Data Warehouse, and Data Marts
Reporting Status Tracking	Online analytical processing Executive information systems
Visualization	Geographical information systems Dashboards Information portals Multidimensional presentations
Business Analytics	Optimization Data mining, Web mining, and Text mining Web analytics
Strategy and Performance Management	Business performance management / Corporate performance management Business activity management Dashboards and scorecards
Communication and Collaboration	Group decision support systems Group support systems Collaborative information portals and systems
Social Networking	Web 2.0
Knowledge management	Knowledge management systems Expert locating systems
Intelligent Systems	Expert systems Artificial neural networks Fuzzy logic Genetic algorithms Intelligent agents Automated decision systems

Table 7: Computerized Tools for Decision Support¹⁹⁷

¹⁹⁶ Cf. Turban et al. (2011): 27.

¹⁹⁷ Cf. Turban et al. (2011): 26.

A DSS could use one or a combination of the above-mentioned tools. Each tool has certain capabilities and limitations, therefore, by combining several tool it is possible to improve the support by taking advantages of synergies. If tools are combined, it is called a hybrid (integrated) support system.¹⁹⁸ Hence, to foster support capabilities and take advantages of synergies, this thesis tries to develop a conceptual model for an intercultural decision support system that takes advantages of several tools.

3.4.2 General High-Level Architecture of a DSS

Abstracting from the tools, the general high-level architecture of a DSS consists of five components. The first one is the data, because all problems that need to be solved need data. Then the data is manipulated by models, which are either standardized (i.e. an Excel function) or more customized ones. Some of DSSs have knowledge as a component. The fourth component is the user interface. The fifth and an essential component is the user that interacts with the entire system and is therefore outside of the actual architecture.¹⁹⁹ The relationship of the components can be seen in the following figure.

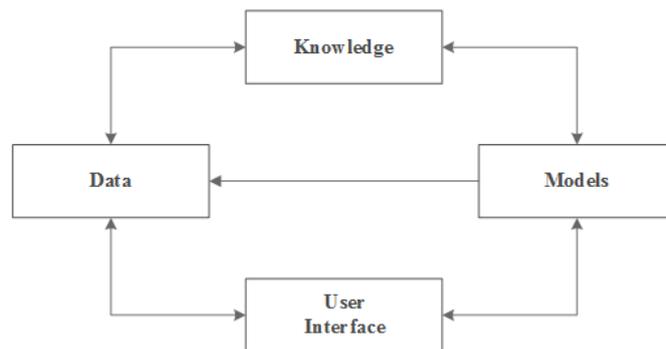


Figure 8: High Level Architecture of DSS²⁰⁰

Following the high-level architecture, all DSS have characteristics and capabilities that should be fulfilled.²⁰¹

3.4.3 DSS Characteristics and Capabilities

There is, same with the definition about DSS, no consensus what standard characteristics and capabilities of a DSS are. Nevertheless, the following figure depicts a set of 14 possible characteristics and capabilities.²⁰²

¹⁹⁸ Cf. Turban et al. (2011): 27.

¹⁹⁹ Cf. Turban et al. (2011): 17.

²⁰⁰ Cf. Turban et al. (2011): 18.

²⁰¹ Cf. Turban et al. (2011): 77.

²⁰² Cf. Turban et al. (2011): 77.

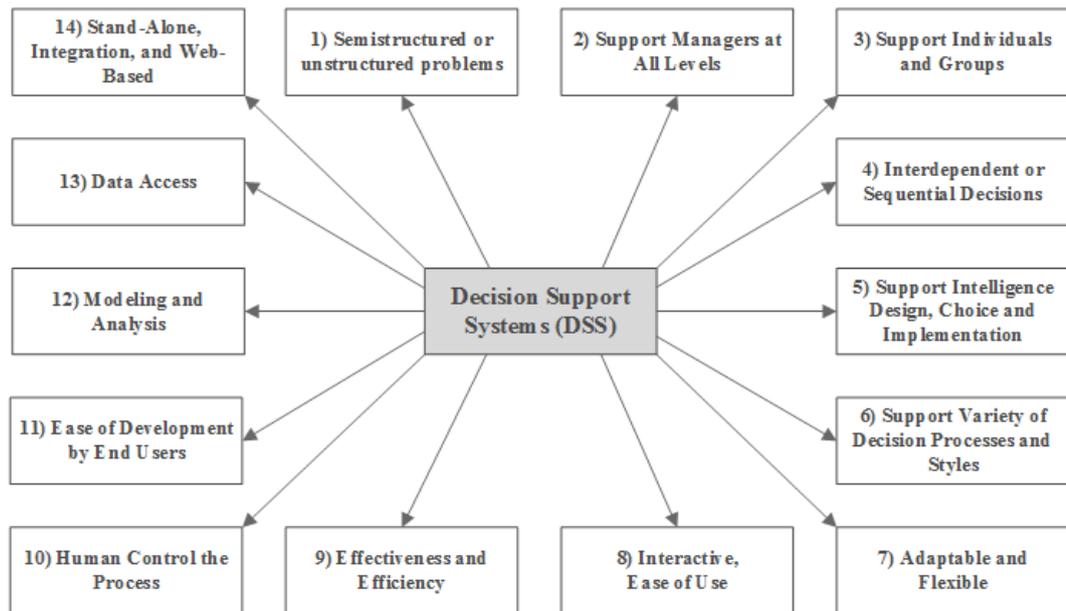


Figure 9: Key Characteristics and Capabilities of DSS²⁰³

The DSS should be able to support **semistructured or unstructured problems**. This should bring the computerized information and human judgement together. It should not focus on specific levels; it should **support managers at all levels**, ranging from bottom to top managers. In addition to that, it also should not focus on the amount of people involved; it should **support individuals and groups**. The DDS should support **interdependent or sequential decisions**. As mentioned before, it should **support intelligence, design, choice and Implementation**. Additionally, it should **support variety of decisions processes and styles**. The DSS should be able to adapt to changing conditions and, therefore, be **adaptable and flexible**. As not every manager is skilled in IT, the DSS should be **interactive, ease of use**. The DSS should improve the **effectiveness and efficiency** of the decision-making. Despite the IT supports processes, it is essential that **humans control the process**, as a DSS should not replace, but support processes. The DSS should offer an **ease of development by end users** to easily modify parts. **Modeling and Analysis** should be offered by a DSS to model and analyze decision-making situations. Essential to a DSS is the **data access**, which should provide access to a variety of data sources and formats. The DSS should offer and be **stand-alone, integration, and web-based**.²⁰⁴

3.5 Decision Support System Frameworks

A decision support system has several frameworks. Each framework has a different focus:²⁰⁵

²⁰³ Cf. Turban et al. (2011): 77.

²⁰⁴ Cf. Turban et al. (2011): 78–79.

²⁰⁵ Cf. Power (2002): 13–14.

- **Communications-Driven DSS:** The focus is on communication and collaboration, which is essential for today's organizations.
- **Data-Driven DSS:** The focus is on data to have an integrated data store that is accessible for all managers.
- **Document-Driven DSS:** The focus is on documents to support the decision workflow to, for example, offer a paperless work.
- **Knowledge-Driven DSS:** The focus is on sharing and maintaining knowledge within the organization.
- **Model-Driven DSS:** The focus is on models to support the complexity of models.²⁰⁶

3.6 Decision Support Situations

Regardless the framework, each decision support system can be categorized into four stereotypical situations: same place/same time, same place/different time, different place/same time and different place/different time.²⁰⁷ The following table describes decision support situations in the same/different time/place matrix with respective tools.

	Same Place	Different Place
Same Time	Decision Rooms Computers with projector displays Voting tools	Two-way video Audio conferencing White boards Screen sharing Chat
Different Time	Workstation software for shift work Document sharing	Conferencing Bulletin Boards Email Voice mail

Table 8: Decision Support Situations Matrix²⁰⁸

In addition to the place/time matrix, decision support system situations can be grouped into their suitability to stereotypical business tasks in contrast to face-to-face meetings.²⁰⁹ This relationship is depicted in the following table.

²⁰⁶ Cf. Power/Sharda/Kulkarni (2007): 5–6.

²⁰⁷ Cf. Power (2002): 106.

²⁰⁸ Cf. Power (2002): 106.

²⁰⁹ Cf. Power (2002): 114.

	Asynchronous Decision Support	Synchronous Decision Support	Face-to-Face Meetings
Generating ideas and actions	More Ideas Experienced users satisfied	More ideas Experienced users satisfied	Acceptable
Choosing alternatives	Good for rating and ranking by experienced users	Good for rating and ranking	Can be more time consuming
Negotiating solutions	Hard to conduct negotiations	Passible with interactive video and white board	Preferred approach

Table 9: Task Types and Media Types²¹⁰

In the figure, it can be seen that asynchronous and synchronous decision support can be a good alternative to face-to-face meetings. However, when organizations use their decision support, they also need to consider international and cultural issues.²¹¹

3.7 International and Cultural Issues in DSS

Globalization takes also place in the field of decision support systems; therefore, there are several international and intercultural issues: Accounting and currency issues, cultural differences, different legal regulations, electronic communication limitations, telecom and infrastructure, time zone differences.²¹²

Accounting and Currency Issues: Currency exchanges can be challenging for organizations when acting internationally.²¹³

Cultural Differences: POWER ET AL. (2007) discusses a few possible cultural problems, e.g. cultural differences in color interpretations, but a sophisticated discussion remains scarce.²¹⁴ Consequently, this thesis tackles this matter.

Different Legal Regulations: A global expansion is challenged by complex governmental regulations. For example, privacy greatly differs between countries and therefore needs to be considered.²¹⁵

Electronic Communication Limitations: In today's organizations most communication is done with electronic support. This is especially important for globally acting organizations. Consequently, the limitations of certain situations needs to be considered.²¹⁶

²¹⁰ Cf. Power (2002): 114.

²¹¹ Cf. Power/Sharda/Kulkarni (2007): 3.

²¹² Cf. Power/Sharda/Kulkarni (2007): 7–9.

²¹³ Cf. Wang/Solan/Xu (2014): 93.

²¹⁴ Cf. Power/Sharda/Kulkarni (2007): 7.

²¹⁵ Cf. Power/Sharda/Kulkarni (2007): 8.

²¹⁶ Cf. Power/Sharda/Kulkarni (2007): 8.

Telecom and Infrastructure: The reliability and performance differs among cultures and countries. When using a DSS, this should be considered.²¹⁷

Time Zone Differences: In the following figure, you can see the world map including time zones.

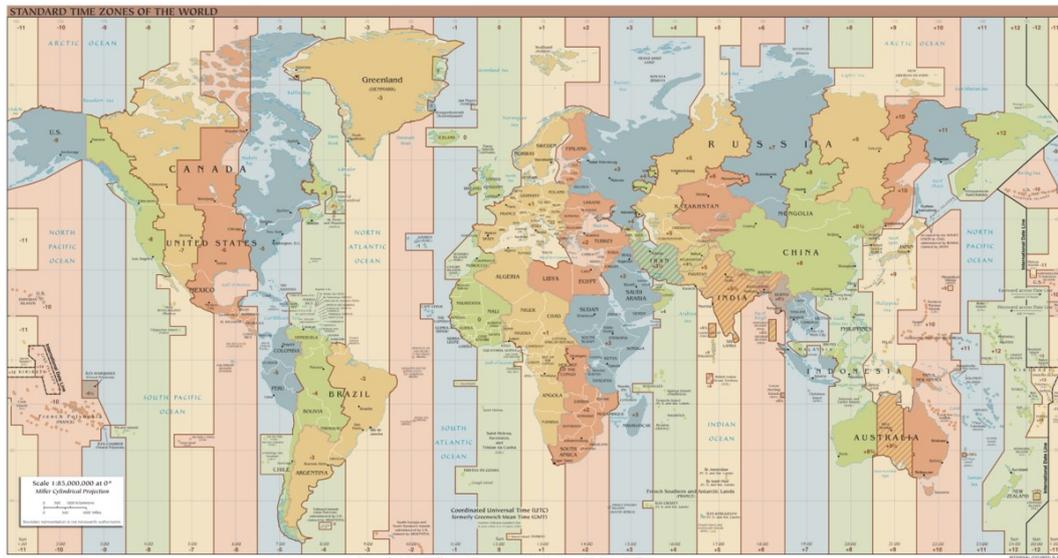


Figure 10: Times Zones²¹⁸

The world is divided into many different time zones; consequently, it can be difficult to have a common time zone when acting globally. The following diagram gives an example and depicts the common working hours of Germany²¹⁹ and Korea with respect to other time zones. A stereotypical working day from 9am to 6pm is assumed. Depending on the organization, the working hours might vary.

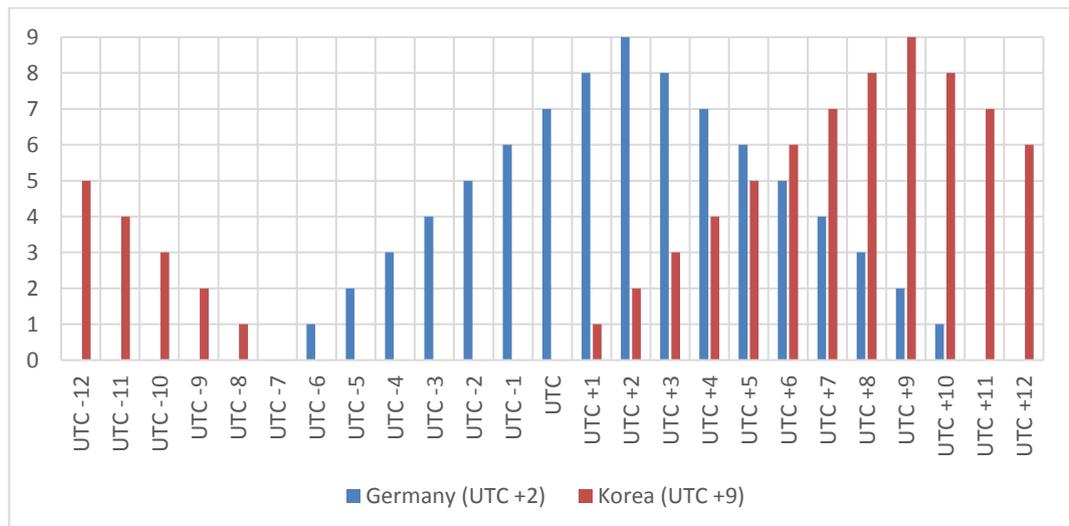


Figure 11: Common Working Hours (Own Depiction)

²¹⁷ Cf. Power/Sharda/Kulkarni (2007): 8–9.

²¹⁸ <https://www.cia.gov/library/publications/the-world-factbook/docs/refmaps.html>

²¹⁹ The Time Zone of Germany has been set to the summer time (UTC +2)

The blue bars show the common working hours of Germany (UTC +2) with other time zones. The red bars show the ones for Korea (UTC +9) accordingly. Germany and Korea have 9 hours of common working hours with their respective time zones. Korea has common working hours for example with the USA, but then Korea is one day ahead of the USA. Consequently, the actual date has to be considered with more care (e.g. contracts). Considering the common working hours between Germany and Korea, they only have two hours of the working times that are common (Germany 9am to 11am and Korea 4pm to 6pm).

<i>GER/KOR</i>	Same Place	Different Place
Same Time	n/a	2 hours
Different Time	n/a	7 Hours

Table 10: Place/Time Matrix Germany and Korea (Own Depiction)

Based on the quantity of time available, the clear focus is, obviously, on the matrix field different place/different time. In order to use the tools for different place/same time, the common time needs to be scheduled beforehand.

In addition, it should be considered, due to time difference, Koreans already have worked almost an entire day when Germans would do conference talk with Koreans. Consequently, Koreans might seem tired.²²⁰

Considering the previously mentioned issues, it is important to consider global aspects when dealing with DSS.²²¹

3.8 Global Decision Support Systems

For a global organization communication and collaboration is essential and, therefore, a communications driven DSS is central. Much data is generated in global organizations. In order to maintain control of this amount, a single point of truth approach should be fostered that all decision makers can access globally. The local context like currency, language, etc. need to be considered within the data driven DSS. Language becomes a critical issue in a document driven DSS. Knowledge driven DSS can support the sharing of knowledge in a global organization, however, converting local knowledge into global knowledge is quite challenging. Model driven DSS greatly differ between local and global organizations in terms of complexity of the models. Having an integrated decision support system, in terms of the enterprise architecture, still remains challenging for today's global organizations.²²²

²²⁰ Cf. Kim (2014): 135.

²²¹ Cf. Power/Sharda/Kulkarni (2007): 3.

²²² Cf. Power/Sharda/Kulkarni (2007): 5–6.

The following table depicts the relationship between the DSS frameworks and the mentioned international and cultural issues in DSS.

	Communications	Data	Document	Knowledge	Model
Accounting and Currency Issues	Low	High	Medium	Medium	Medium-High
Cultural Differences	High	Medium	Medium	High	Medium
Differing Legal Regulations	Medium	Medium	High	High	Low
Electronic Communication Limitations	High	Medium	Low	Medium	Medium
Telecom and Infrastructure	High	Medium	Medium	Medium	Low
Time Zone Differences	High	Low	Low	Low	Low

Table 11: Importance of Global DSS Issues for Different DSS Frameworks²²³

Cultural differences are stated as possible problems, with a medium to high importance, within a possible DSS. However, as the literature about the interrelation between culture and decision support systems, in specific how a decision support system could support culture, remains scarce, there is a lack of potential.

3.9 Certainty, Uncertainty and Risk in DSS

Considering the certainty, uncertainty and risk in DSS is getting more and more important, as the complexity of intercultural situations is rising and therefore the knowledge will decrease and, consequently, generates a higher risk. Therefore, this thesis tries to increase the knowledge by developing a conceptual model for an intercultural decision support system to increase the knowledge and, therefore, having a better decision-making. The relationship between knowledge and risk can be seen in the following figure.

²²³ Cf. Power/Sharda/Kulkarni (2007): 9.

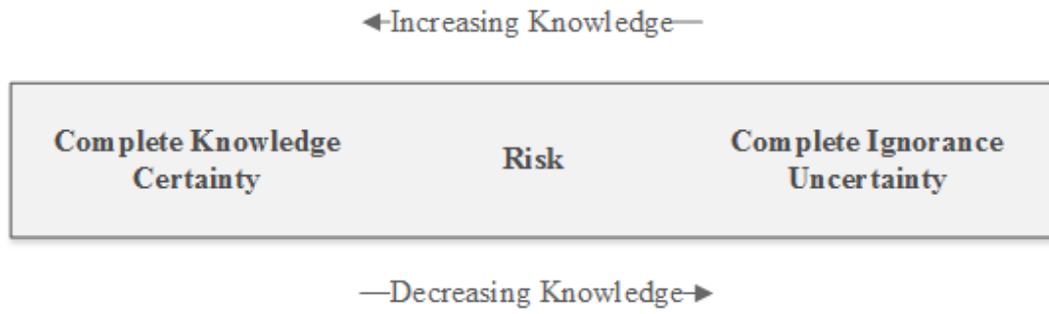


Figure 12: Zones of Decision-Making²²⁴

²²⁴ Cf. Turban et al. (2011): 148.

4 Research Method

The purpose of this research is to develop a conceptual model that outlines the interrelation between culture and decision support systems. This model helps to understand and explain which areas of culture could be supported by decision support systems. This chapter shows the focus of the thesis, the applied research method and, thus, describes the research process. Furthermore, the research validation through expert interviews, data analysis and model reflection are described.

4.1 Focus of the Thesis

The focus can be structured into dimensions (individual, organization and national) and into settings (individual, organization and national). The dimensions can be understood as the kinds of culture, as everyone has an individual, organizational and national culture. On the other hand, the dimensions are ‘lived’ in a certain setting. This thesis focuses on the national dimension (national culture) in the organizational setting (within organizations). The individual and national field in the national dimension is not the primary focus of this thesis, but for a better understanding of the dependencies, this thesis gives explanations to a certain extent for the both settings. The focus is depicted in the following table.

Setting \ Dimension	Individual	Organizational	National
Individual			
Organizational			
National			

Table 12: Cultural Focus of Thesis (Own Depiction)

4.2 Scientific Positioning

Since its beginnings, *information systems*, sister discipline of the German Wirtschaftsinformatik, has been an independent scientific stream and has a clearly defined subject area.²²⁵

The general structure of an information system includes the individuals, the tasks and the IT that have an interrelation, which is depicted in the following figure.

²²⁵ Cf. Heinrich/Heinzl/Roithmayr (2007): 13.

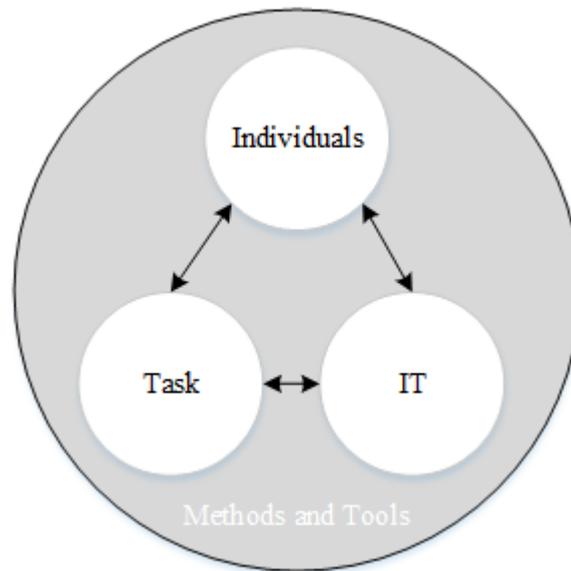


Figure 13: General Structure of an Information System²²⁶

Ensuring a proper fit between the three elements of an information system (information technology, task and individuals), it is essential to have a cultural intelligence capability in order to avoid problems.²²⁷

However, as mentioned before, there are many conceptualizations of culture, which makes it difficult to investigate the interrelationship between culture and decision support systems sufficiently, with respect to all conceptualizations. Consequently, instead of comparing and contrasting many of these cultural models and deriving own concepts that are suitable for this research, this thesis pursues an inductive approach. The initial conceptual model is derived by observations from qualitative interviews. The second phase of interviews used the initial conceptual model, which then lead to the final conceptual model. This should focus on building a theory. The relationship is depicted in the following figure.

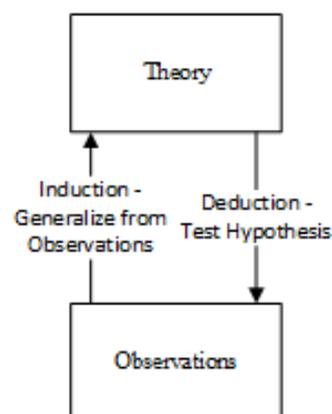


Figure 14: Cycle of Research²²⁸

²²⁶ Cf. Heinrich/Heinzl/Roithmayr (2007): 16.

²²⁷ Cf. Heinzl/Leidner (2012): 109.

²²⁸ Cf. Bhattacharjee (2012): 4.

4.3 Research Process

As mentioned before, a major problem for organizations is the steadily rising globalization and the more and more international workforce. Additionally, managers need to make faster and better decisions. Both research fields (culture and DSS) have theories. Linking the practical problems and the theories results in the research gap. This gap shows that the research of the relationship between culture and decision support systems remains scarce. The research gap is tried to be bridged in the research process. The research process finally results in practical and theoretical contributions, which both then result in new practical problems and theories. This closes the research cycle. In the following figure, the structure of a research process is depicted:

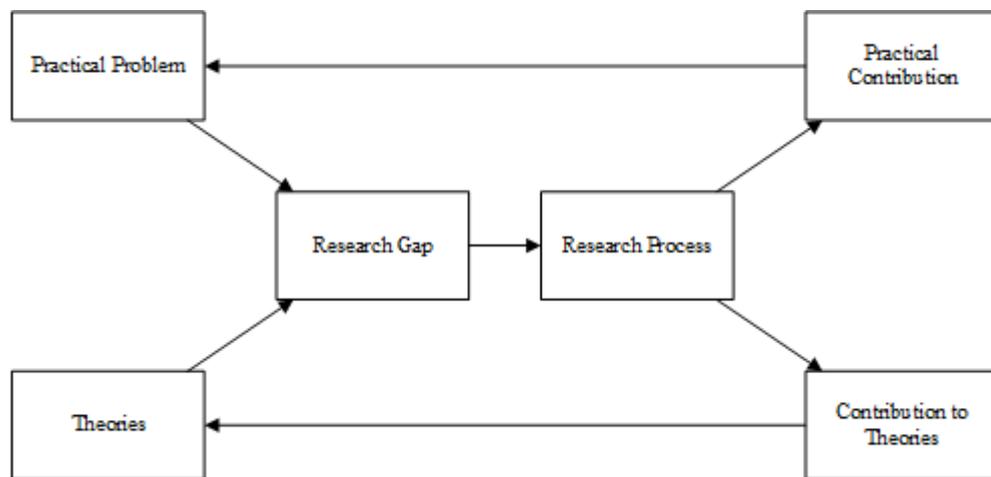


Figure 15: Structure of a Research Process (Own Depiction)

The following figure goes into further detail of the research process.

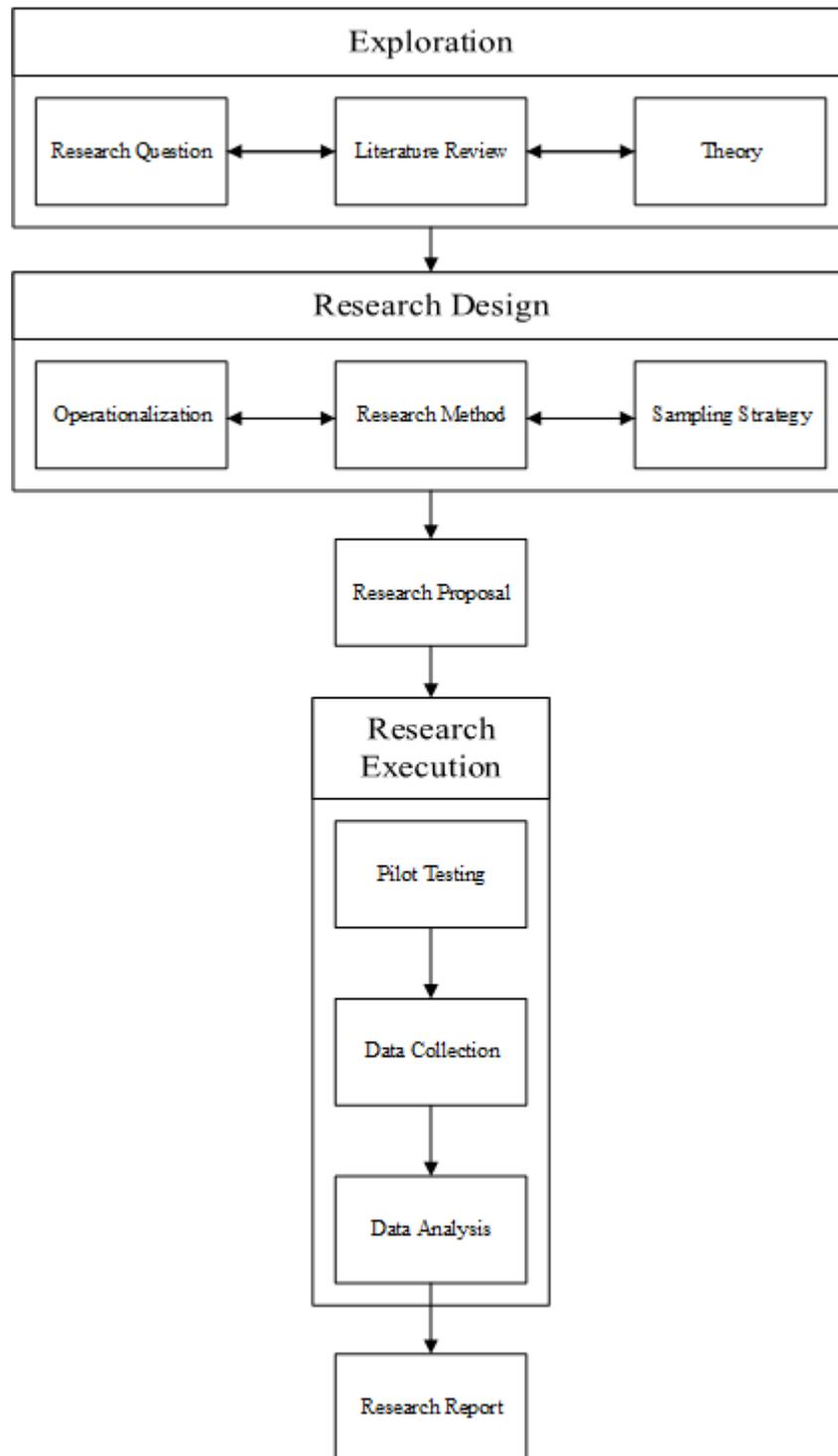


Figure 16: Research Process²²⁹

²²⁹ Cf. Bhattacharjee (2012): 20.

The first part deals with the exploration. This phase includes defining the research questions, conducting an extensive literature review to discuss the current state of knowledge and to identify theories that could help in answering the research questions.²³⁰

The second part focuses on creating an outline to answer the research questions satisfactorily. This deals with operationalizing constructs, selecting a research method and deciding for a sampling strategy.²³¹

The last part deals, after having decided on the subjects, the concepts and the research method, with the execution of the research, which include pilot testing, data collection and lastly the data analysis.²³²

4.3.1 Research Question

The starting point deals with the collection of possible research objectives. As intended by MINTZBERG (1979) the research questions resulted from an appropriate evaluation phase and were hence defined.²³³ The research questions should be appealing to a broader population and should address complex and real problems, especially answers to problems that are not obvious.²³⁴

4.3.2 Literature Review

After defining the research questions, an extensive literature review should be conducted, which has three purposes:

- “to survey the current state of knowledge in the area of inquiry
- to identify key authors, articles, theories, and findings in that area, and
- to identify gaps in knowledge in that research area.”²³⁵

Further, a well-conducted literature review should reveal whether the research questions have been answered already or if better suitable research questions are available.²³⁶

After the purpose of this thesis has been defined, the current research gaps regarding culture and decision support systems has been identified by an extensive literature review. The literature review focused on culture and on how it could be possibly supported by IT. The main literature sources were research papers and books. The literature review revealed that, to the best knowledge, no study has yet examined the interrelation of national culture and

²³⁰ Cf. Bhattacharjee (2012): 20.

²³¹ Cf. Bhattacharjee (2012): 21–22.

²³² Cf. Bhattacharjee (2012): 23.

²³³ Cf. Mintzberg (1979): 585.

²³⁴ Cf. Bhattacharjee (2012): 21.

²³⁵ Bhattacharjee (2012): 21.

²³⁶ Cf. Bhattacharjee (2012): 21.

decision support systems. Consequently, the research questions could remain without modifications.

4.3.3 Theory

Theories can help to tackle the research questions. In addition, theories help to find suitable constructs for the research. Not all theories are suitable for all research fields and therefore a careful selection should be done.²³⁷

4.3.4 Operationalization

Operationalization deals with the designing of appropriate constructs of interest. This can be done by using already existing concepts or by modifying them. In case there are no appropriate concepts available for the specific purpose of the research, new concepts should be derived.²³⁸

As mentioned before, there are over 120 conceptualizations for culture. Looking into a large set of conceptualization would result into an extensive comparing and contrasting of suitable constructs. This would be overly complex doing so in order to find constructs that would be beneficial in answering the research questions. Instead of doing so, this thesis derived its own suitable set of cultural constructs that is depicted in the initial conceptual model. Further research could then match the final conceptual model with existing constructs to find similarities to further refine the model.

4.3.5 Research Method

At the same time as the operationalization, the research method, which should be employed for collecting the data to address the research questions, should be decided.²³⁹ BHATTACHERJEE (2012) suggests that new research fields should focus on exploratory research as it generates initial ideas about a specific phenomenon. Exploratory research serves as a first step for further research. Within this first step, qualitative studies should be conducted when the focus is on understanding a phenomenon instead of explaining or predicting behavior.²⁴⁰

Consequently, this thesis serves as the first step to further research that should use these results to build empirical studies to explain the phenomenon between culture and decision support systems.

²³⁷ Cf. Bhattacharjee (2012): 21.

²³⁸ Cf. Bhattacharjee (2012): 22.

²³⁹ Cf. Bhattacharjee (2012): 22.

²⁴⁰ Cf. Bhattacharjee 2012

4.3.6 Sampling Strategy

It is also essential to define the target population from which the data should be collected from. The strategy for the sampling should also define the sample from the population.²⁴¹

Semi-structured interviews with experts from practice were conducted to validate the research. Providing a high quality and high degree of expressiveness, a combination of diverse business domains and different roles of the interview partners, both male and female, were chosen. Therefore, organizations acting globally in common business fields were looked for. The process of acquiring interview partners consisted of several steps. After several German organizations, in Germany, and Korean organizations, in Korea, were identified, the respective organizations were contacted either via E-Mail or via phone to identify a person who is both willing and suitable for participating in this study. These persons were then contacted with an introductory that outlines the purpose and goal of these interviews. At all times, anonymity and only aggregated usage of confidential information was guaranteed to diminish any concerns. After the results of this research have been finished, the respective interviewees will get access to them to increase the response rate. The interviews were conducted either via telephone or at the respective organization. Each interview lasted approximately 60 minutes.

4.3.7 Research Proposal

A research proposal is a summary of the previously done research in order to adjust the research process accordingly. This is especially important, as reviewing in early stages makes it still possible to adjust the research without major changes.²⁴² The research proposal revealed no adjustment, consequently, the research continued as planned.

4.3.8 Pilot Testing

The pilot testing is an important part within the research process. It focusses on testing the research setting in order to adjust the further research process. Therefore, it only contains a smaller sample of interviewees.²⁴³ Consequently, a small set of interviews was conducted prior to the interviews for the initial conceptual model.

4.3.9 Data Collection

After a successful pilot testing, the full sample is being interviewed²⁴⁴ and an initial conceptual model, including respective propositions, has been developed. This is consistent

²⁴¹ Cf. Bhattacharjee (2012): 22.

²⁴² Cf. Bhattacharjee (2012): 22.

²⁴³ Cf. Bhattacharjee (2012): 23.

²⁴⁴ Cf. Bhattacharjee (2012): 23.

with EISENHARDT (1989) by being able to have an empirical validation onto a theoretical grounding. Semi-structured interviews with experts from practice were conducted to manifest the validation. To improve and to refine the initial conceptual model the collected data has been analyzed.²⁴⁵

After the initial conceptual model, the second phase followed the proposed steps of OPPENHEIM (2000); the guide of the conducted interviews is divided into parts. First, the interviewees were asked their demographic characteristics like the organization, the department they belong to and their respective position. Second, the explanatory part is in focus.²⁴⁶ As GLASOW (2005) proposed, the explanatory part's open questions aim at getting to as much information as possible from the interviewee's statements. However, these questions should be still feasible.²⁴⁷

The explanatory part was conceptualized with open questions. Their main purpose was to acquire an explanation and understanding of three objectives. The following list shows the main purposes that were sought getting to know:

- Consistency of actual behavior to literature
- Perception of people from other cultures
- Concepts that focus on the interrelation

The interviews with the German interview partner were conducted in German and the interview with the Korean interview partner in English. In case it had been, necessary quotations and statements were further explained to avoid misunderstandings. As anonymity was ensured, there is no further discussion about the organization the interviews were conducted in.

The coding of the interview partners has the following structure: 'xyz'; 'x' being the number of the interview phase, 'y' being the culture of the interviewee and 'z' being the number of the interviewee in the respective interview phase. As an example '2k7' is the second interview phase with a Korean and the seventh interviewee within the second phase.

4.3.10 Data Analysis

After the data collection, the data has to be analyzed and interpreted in order to find conclusions regarding the respective research questions.²⁴⁸

²⁴⁵ Cf. Eisenhardt (1989): 536.

²⁴⁶ Cf. Oppenheim (2000): 7–8.

²⁴⁷ Cf. Glasow (2005): 12.

²⁴⁸ Cf. Bhattacharjee (2012): 23.

The interviews were conducted by taking written notes. These notes consisted of the interviewees' statements and their respective measurement assessment of the interrelation. Following WESTON ET AL. (2001) approach, avoiding incomplete or false deduction of facts, if necessary, statements and notes have been reviewed by its respective interview partner.²⁴⁹

The results were analyzed and, if necessary, translated. The sequence and particularities of actions follow the models proposed by MAYRING (2003). All interviewees' statements were collected in a sheet. Here, sorting and rating if the statement is consistent with the conceptual model was the main focus. This was done to get an idea of which national cultural concepts need revision with respect to their proposition.²⁵⁰

4.3.11 Research Report

The last phase is to prepare the research report that documents the findings in a form of a paper or thesis.²⁵¹

After this discussion about the applied research method, the following chapter discusses the deriving of the initial conceptual model.

²⁴⁹ Cf. Weston et al. (2001): 394.

²⁵⁰ Cf. Mayring (2003): 54–62.

²⁵¹ Cf. Bhattacharjee (2012): 23.

5 Relevant Cultural Areas and Support by IT

Culture related misunderstandings are the greatest threat to successful intercultural collaboration.²⁵² IT should help today's manager in fostering their intercultural competence.²⁵³ Innovative solutions for solving intercultural issues are needed for today's organizations. Intercultural issues are challenging, but luckily not impossible to overcome.²⁵⁴

TURBAN ET AL. (2011) made an interesting statement that supports the idea of this thesis: "When creating a DSS, it is important to plan the system and then purchase (or build) the components and 'glue' them together. In many DSS, the components are standards and can be purchased. But in other situations, especially unstructured ones, it is necessary to custom build some or all of the components."²⁵⁵ When developing a DSS that should successfully supports a manager, it should be adaptable and flexible to different users that should fit the decision situation and style.²⁵⁶

This is especially important, as the users getting more and more international, which supports the motivation of this thesis. As the literature remains scarce in terms of computerized support of culture and the fact that culture is a rather unstructured concept in the first place, this thesis peruses the idea of developing a conceptual model that gives support in this respective matter.

5.1 Phase One of Qualitative Interviews

In the following, the information of the first phase of the interviews and the respective deriving of the initial model will be discussed.

5.1.1 Interviews

The sample consisted of six Korean interviewees, three men and three women, from various organizations. The roles and business domains are chosen without any specific focus, as the model of this thesis is an exploratory approach and therefore should be a first step to derive it. Consequently, the qualitative questions were unstructured and followed no pre-determined structure. The general question was to ask the interviewees about their personal intercultural experience and their personal experienced culture related problems. The interviewees are depicted in the following table:

²⁵² Cf. Bolchover (2012): 4.

²⁵³ Cf. Deardorff (2015): 5.

²⁵⁴ Cf. Bolchover (2012): 18.

²⁵⁵ Turban et al. (2011): 17.

²⁵⁶ Cf. Turban et al. (2011): 43.

Number	Culture	Gender	Organization	Role	Domain
1k1	Korean	Female	1kA	CEO	Education
1k2	Korean	Male	1kB	Administration	Public Service
1k3	Korean	Male	1kC	IT-Strategy	Consulting
1k4	Korean	Male	1kD	M&A	Law
1k5	Korean	Female	1kE	Planning	IT
1k6	Korean	Female	1kF	CRM	Trading

Table 13: Information about Phase One Interviewees

The first phase of interviews stopped at six interviewees, because no new concepts arose from the interview.

5.1.2 Deriving of the Initial Conceptual Model

Out of the first phase interviews, the following initial conceptual model was derived. This was done by categorizing the statements of the interviewees into similar sub-concepts. Each sub-concept was then grouped into main concepts. The initial model is shown in the following figure:



Figure 17: Initial Conceptual Model (Own Depiction)

To this point, the categorization of the concepts has no sequence itself. The following case study of a common working situation of Mr. Mustermann, who is a stereotypical German employee, puts the unstructured initial conceptual model into a sequence of actions. This sequence will be used in the sequence of the following chapters.

Mr. Mustermann is a German employee in a German organization based in Germany. The Germany organization decided to foster its globalization strategy and started having a close partnership with a Korean organization based in Korea. Mr. Mustermann never had any contact to a Korean before; however, has a preconception how Koreans might behave. When he starts communicating with the Korean organization and quickly realizes that they have a different way of communicating. When communicating, he realized that language is an issue. This might be due to the fact that for both him and the Koreans English is not the mother tongue and Mr. Mustermann does not speak any Korean. After several weeks of negotiations, Mr. Mustermann's boss decides to send him to Korea to speed up the negotiations. After arriving in Korea and start working in the Korean office, Mr. Mustermann and his Korean partners are confronted with some problems. He quickly realizes that the Koreans have a very different method in dealing with problems. After the problems have been solved, Mr. Mustermann realized that the hierarchy is rather steep. Another issue he realized is that the formalization of the work is vague in Korea. There is no clear responsibility or job description as well as contracts are not as detailed as Mr. Mustermann is used to. The leadership style is also different from Germany. In Korea, the boss has much more power, but relies on his employees. After some arguments with his Korean colleagues he noticed that the conflict resolution is differently as in Germany. In Korea it is indirect and avoiding talking about the problem directly. In addition, the work attitude is also very different to the attitude Mr. Mustermann is used to. In Korea work life and private life is not clearly separate. The preference in terms of technology is interesting for Mr. Mustermann, as Koreans clearly prefer Korean localized software. In Korea, the dealing with knowledge seems very different to Mr. Mustermann. Privacy concerns are basically not existent in Korea. Finally, when Mr. Mustermann received a visualization from a Korean colleague, he was confused by the usage of color, as he is used to a different interpretation of color.

After the initial conceptual model has been derived through interviews of the first phase and put into a sequence, the second phase of interviews was conducted.

5.2 Phase Two of Qualitative Interviews

In the following, the information of the second phase of the interviews and the respective deriving of the respective propositions will be discussed.

5.2.1 Interviews

The second interview sample consisted of 13 German and 13 Korean interview partners, both ten men and three women, from various organizations. The roles and business domains are chosen without any focus, as the model of this thesis is an exploratory approach. The second phase were qualitative questions that were still rather unstructured, but focused on the initial conceptual model. The questions were to ask the interviewees about their personal intercultural experience within the respective concepts, their experienced problems and their personal wishes for a (computerized) support in the respective concepts.

The second phase consists of 13 German and 13 Korean interviewees out of a random sample.

Person ID	Culture	Gender	Organization	Role	Domain
2g1	German	Male	2gA	Management	Trading
2g2	German	Male	2gB	CEO	Retail
2g3	German	Female	2gB	CEO	Retail
2g4	German	Male	2gC	Consultant	Software
2g5	German	Male	2gD	CEO	Cleaning
2g6	German	Female	2gE	Sales	Engineering
2g7	German	Male	2gF	Sales	Telecommunication
2g8	German	Male	2gG	Engineer	Handicraft
2g9	German	Female	2gH	CEO	Retail
2g10	German	Male	2gI	Engineer	Chemical
2g11	German	Male	2gJ	Management	Telecommunication
2g12	German	Male	2gK	Engineer	Telecommunication
2g13	German	Male	2gL	Sales	Hotel

Table 14: Summary of German Interviewees Phase Two

The following table depicts the 13 Korean interviewees:

Person ID	Culture	Gender	Organization	Role	Domain
2k1	Korean	Male	2kA	CEO	New Product Design
2k2	Korean	Male	2kB	CEO	Food & Beverages
2k3	Korean	Male	2kC	CIO	Software
2k4	Korean	Male	2kC	Management	Software
2k5	Korean	Male	2kC	Management	Software
2k6	Korean	Male	2kD	Management	Security Products
2k7	Korean	Male	2kE	Management	Food & Beverages
2k8	Korean	Male	2kF	Management	Food & Beverages
2k9	Korean	Female	2kG	Consultant	Consulting
2k10	Korean	Female	2kG	Consultant	Consulting
2k11	Korean	Male	2kH	Freelancer	Education
2k12	Korean	Female	2kI	Freelancer	Psychology
2k13	Korean	Male	2kJ	Human Resources	Government

Table 15: Summary of Korean Interviewees Phase Two

The following figures describe the specifics of the interviewees. This includes the gender, role and business domain.

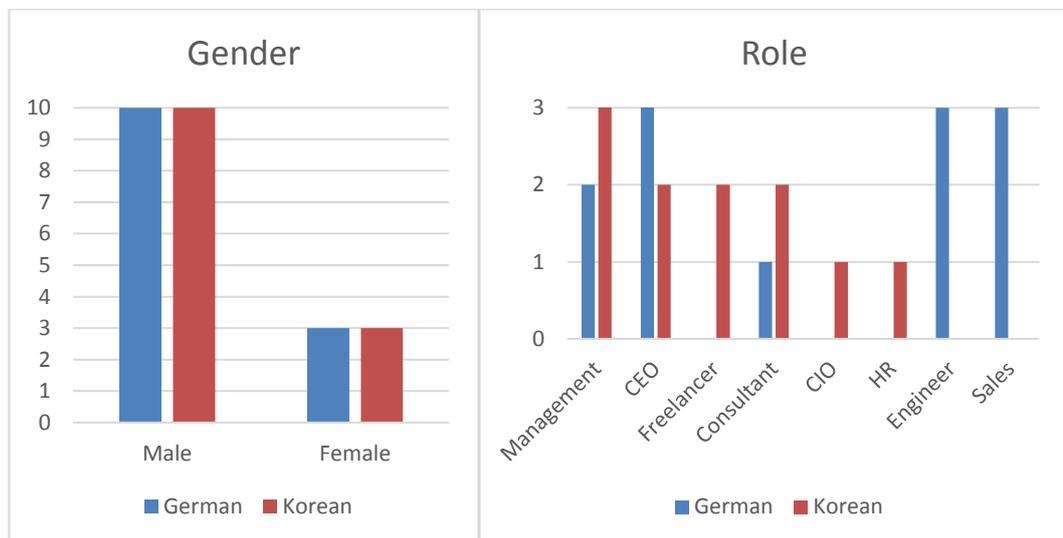


Figure 18: Interview Specifics Phase Two Interviews Gender and Role (Own Depiction)

The ratio of male and female interviewees is same. The roles are rather similar of German and Korean interviewees.

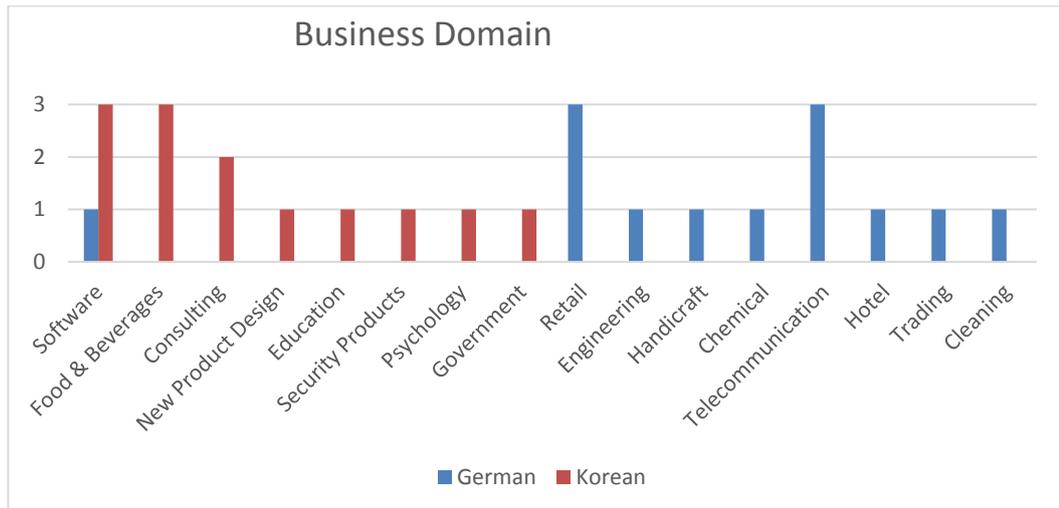


Figure 19: Interview Specifics Phase Two Interviews Business Domain(Own Depiction)

The business domain shows except software no similarity between German and Korean interviewees. As mentioned before in the research method, the random sample was sought for in order to offer a broad spectrum of answers.

5.2.2 Structure of Deriving Propositions

The following discussions about the concepts and the respective sub-concepts follows the following structure:

Initial Conceptual Model:

- 1) General description of concept, with focus on intercultural topics
- 2) Description of sub-concept, with focus on intercultural topics
- 3) Literature about German and Korean behavior in respective sub-concept
- 4) Important comments of interviewees in respective sub-concept
- 5) Discussion about comments, contrasting with literature
- 6) Notes about possible problems and wishes for possible IT support
- 7) Proposition for possible support

5.3 Preconception

Sophisticated intercultural knowledge is mandatory in order to have successful international businesses.²⁵⁷ Having an understanding about the other culture is a key element for acceptance. Accepting other cultures enriches oneself.²⁵⁸ Dealing with other cultures can be very rewarding, even though it is challenging.²⁵⁹ People are often not aware that their behavior roots from their culture until they encounter other cultures that behave

²⁵⁷ Cf. Liu/Volčič/Gallois (2011): 24.

²⁵⁸ Cf. Liu/Volčič/Gallois (2011): 22.

²⁵⁹ Cf. Sanchez-Runde/Nardon/Steers (2011): 212.

very differently.²⁶⁰ Applying one's own cultural concepts in a different cultural context can cause misunderstandings and a negative feeling.²⁶¹ Even though one's behavior seems appropriate in one culture, it can be seen as 'strange' and offensive in others.²⁶²

5.3.1 Stereotypes

When people interact with other people they behave according to a certain pattern that he thinks is the 'correct' one. However, especially in intercultural situations, people fail to have a positive outcome when interacting by having the 'wrong' pattern of behavior, as cultures have different patterns.²⁶³ Stereotypes, prejudice or discrimination is often caused by ethnocentrism.²⁶⁴ Cultural socialization can foster ethnocentrism, which means that people see their own culture as best and central, and others as less important and even inferior.²⁶⁵ The majority of countries are concerned about losing their cultural uniqueness when having migrants in their own country.²⁶⁶ When you meet an unknown culture, it causes uncertainty. This easily make you judge the other's behavior as negative without question it more.²⁶⁷

Germans are said to be open-minded to other cultures, but the other cultures should acknowledge the German cultural specifics.²⁶⁸ When Koreans travel outside of Asia, it is shocking for them to realize that Korea gets just little attention, even though they are one of the leading economies in the world. In Germany, Korea gets little attention. The only thing that is discussed about Korea is the conflict between the North and the South. Koreans are often mistaken as Chinese and Japanese outside of Korea.²⁶⁹

Interviewee	Comments
2g1	Preconception support would be good, for example, through videos or games.
2g2	Stereotypes were usually confirmed. However, the details were different, because I did not know the exact mentality.
2g3	Stereotypes are relatively vague.

²⁶⁰ Cf. Liu/Volčič/Gallois (2011): 22.

²⁶¹ Cf. Kim (2014): 97.

²⁶² Cf. Liu/Volčič/Gallois (2011): 22.

²⁶³ Cf. Kim (2015): 27.

²⁶⁴ Cf. Liu/Volčič/Gallois (2011): 23.

²⁶⁵ Cf. Liu/Volčič/Gallois (2011): 22–23.

²⁶⁶ Cf. Liu/Volčič/Gallois (2011): 21.

²⁶⁷ Cf. Kim (2014): 99.

²⁶⁸ Cf. Lewis (2006): 232.

²⁶⁹ Cf. Kim (2014): 3.

2g6	It is important to be prepared when dealing with other cultures, consequently, an IT system would be a great help to study about unknown cultures. Cultural sensibility is important.
2g8	People try not to have stereotypes, but it is natural having them. It would be good way in helping to understand other cultures.
2g9	It is hard to focus just on stereotypes, but IT could be a help in understanding other cultures.
2g12	There are always stereotypes about other cultures, so IT would be a good way to offer insights about other cultures (e.g. how to behave properly).
2g13	Cultural sensibility is important, so you should know about other cultures beforehand.
2k1	When I deal with other cultures, especially the ones I had no contact with before, a checklist for Do's and Don'ts would be a great help. Then I can have a better preconception about their culture and behavior in certain situations.
2k2	IT could be a great support by making the preconception of other cultures clearer.
2k3	It would be helpful if the preconception of a culture would be supported by IT. 'Westerners' are not all the same, so IT could help to differentiate. A video would be nice to see how other cultures behave, their Do's and Don'ts, and so on. However, it would be essential to know who made these videos. Credibility is an issue.
2k4	On the one hand, IT could be a great opportunity to reduce prejudice against other cultures; however, when the system would be badly made it could also foster prejudice. That's why it is important who makes the videos. These could also be biased and that's why it could reduce the trustworthiness. The system could, for example, show simple situations as greetings or even more complex situations as how to solve a conflict.
2k8	Westerners are more free from having stereotypes.

2k11	A multimedia system would be greatly beneficial in order to support regarding stereotypes and prejudice.
------	--

Table 16: Comments of Interviewees Phase Two Stereotypes

Literature and the interviews show stereotypes are omnipresent. This is especially problematic when people have a ‘wrong’ stereotype about other cultures.

The interviewees agreed on the fact that IT could be a great support in dealing with other cultures by supporting with ‘wrong’ stereotypes. So it can be derived that an IS could support stereotype related problems.

P1: An IS could support stereotype related problems.

5.3.2 Fashion and Appearance

Fashion is a culture dependent concept.²⁷⁰

Germans tend to be serious people in a working situation and therefore pay a lot of attention to be well dressed.²⁷¹ Koreans pay a lot of attention to fashion and appearance. So it is recommended to have a rather conservative style. Too fashionable is interpreted as not reliable. Shoes should be easily be taken off, as they are taken off before entering a restaurant or private home.²⁷²

Interviewee	Comments
2g2	In the business context, the fashion is Western classical style (e.g. suit). However, when there is a very special occasion other cultures wear tradition fashion. Fashion also shows about a person’s personality. In today’s world, IT becomes very important, so an IT support would be beneficial.
2g3	I do not expect culture specific traditional fashion when being in a business context. The personality can be derived from the fashion. Consequently, IT would be a great help to support.
2k1	Different cultures have a different sense of fashion. So it would be good to know how to dress ‘cultural’ appropriate.

²⁷⁰ Cf. Lewis (2006): 144.

²⁷¹ Cf. Lewis (2006): 227.

²⁷² Cf. Kim (2014): 187–188.

2k7	Fashion makes people. Especially in Korea, people like to show off. Even though the food is bad but expensive, you can show off and people think you are better. Status is very important.
2k10	Good looking is important for women in Korea.

Table 17: Comments of Interviewees Phase Two Fashion and Appearance

The interviews correspond the literature that fashion and appearance is culture-specific and important to pay attention having a culture-appropriate fashion style when dealing with other cultures.

As fashion is an important factor when dealing with other cultures and as styles could be pre-defined to certain factors (e.g. conservative style), it can be derived that an IS could support fashion and appearance related problems.

P2: An IS could support fashion and appearance related problems.

5.4 Communication

The interpretation of communication (verbal or non-verbal) is culture specific.²⁷³ Intercultural communication can have both positive and negative impact on the organizational productivity.²⁷⁴ In cultural diverse teams, it is important to appreciate one's differences, which would significantly misunderstandings and mitigate potential problems.²⁷⁵

5.4.1 Directness

As communication interpretations are culture-specific, they are learnable. However, you should not take your own culture-specific interpretations as the standard when communicating with other cultures.²⁷⁶

When communicating with Germans, they expect a formalized style. They usually expect to be called according to their title (e.g. Dr.)²⁷⁷ In Korea, people are called according to their title too (e.g. Dr., Professor, etc.). In Korea, first names are only used with close friends of same social status or age as oneself.²⁷⁸ German communication is said that it can be very direct, binding and fact-oriented. The meaning of the communication is in its

²⁷³ Cf. Kim (2014): 129.

²⁷⁴ Cf. Bolchover (2012): 9.

²⁷⁵ Cf. Fellows/Liu (2015): 246.

²⁷⁶ Cf. Kim (2014): 131.

²⁷⁷ Cf. Hofstede (1993b): 280.

²⁷⁸ Cf. Liu/Volèič/Gallois (2011): 4.

words. The context is not needed to get the full meaning. The statement and meaning is not bound to the person.²⁷⁹ Germans tend to not talk around the bush. They are said to directly say what they like or want. There is little room for interpretations, so every single aspect is spoken out. This directness might hurt somebody, but this is not intended.²⁸⁰ On the other hand, Germans only understand what other persons directly express. Indirect meanings are not assumed.²⁸¹ Korean communication is very indirect, implicit and relationship-oriented. In order to fully understand the meaning, the context is essential. You need to take non-verbal communication, the relationship between the involved parties, the hierarchy of the speaker, the time and place into account.²⁸²

An exemplary statement shows the difference in interpreting the directness:

- ‘I cannot help you, because I don’t have time.’
 - German interpretation: I would help you if I have enough time.
 - Acceptable reason for rejection
 - Korean interpretation: You are not worth the time.
 - Very harsh rejection, ruins relationships²⁸³

Germans see Korean’s indirectness as too excessive and as a waste of time, whereas Koreans see German’s directness as too rude and aggressive.²⁸⁴

Interviewee	Comments
2g2	Germans are very direct. Therefore, IT would be good if there were a chance to support and to adjust the level of directness when dealing with other cultures.
2g3	Germans are direct when talking or texting. This is because the language is a very direct one. If IT could rephrase or give hints about the level of directness this would be a great help.
2g6	Germans are very direct, whereas Asians are very indirect. Therefore, it is very difficult sometimes to understand what Asians really want. IT would be a useful support.

²⁷⁹ Cf. Kim (2014): 130.

²⁸⁰ Cf. Thomas/Schroll-Machl/Kammhuber (2003): 81.

²⁸¹ Cf. Thomas/Schroll-Machl/Kammhuber (2003): 82.

²⁸² Cf. Kim (2014): 130.

²⁸³ Cf. Kim (2014): 130.

²⁸⁴ Cf. Kim (2014): 131.

2g8	Germans are sometimes too direct; this can cause problems with other cultures. Asian cultures are so indirect that nobody knows what they really want, at least from a German understanding.
2g12	To me, IT would be a good help supporting me in directness matters to know which level is appropriate.
2k2	The language structure determines the level of directness. The Korean language puts the verbs at the end, so this is rather indirect. The syntax also determines the directness. Koreans usually hide their feelings, but I find hiding feelings is not good. Telling upfront is important, however, bosses in Korea can be quite harsh. It is a top down approach, because the boss always directly tells what is wrong.
2k6	Westerners easily tell personal opinions.
2k8	Korean older bosses are tougher on men than on women, because men are accustomed to obeying; women are not used to that so it is harder to tell them what to do. Female bosses are usually tough to their female employees, as they see them as possible competitors.
2k9	Women are better at delivering information. They are way nicer and better at communication. They have a better delivery skill.
2k10	If you say 'no' to your boss, you need an important reason why saying 'no'.

Table 18: Comments of Interviewees Phase Two Directness

As the literature suggested that Germans tend to be very direct and Koreans tend to be very indirect the interviews also showed that fact.

As culture-specific communications are learnable, in specific the preferred level of directness in a communication and as the interviewees wished for an IT support, it can be derived that an IS could support directness related problems.

P3: An IS could support directness related problems.

5.4.2 Written Versus Spoken Communication

Whether a person prefers written or spoken communication is determined by his culture.²⁸⁵

In Germany, formal documents need to be done in written form due to its legal basis.²⁸⁶ For Germans, time has a major issue, so E-Mail is just a tool to communicate fast. Germans see anything that is not related to topic itself, like small talk, as a waste of time.²⁸⁷ Germans tend to reply when they gathered all data needed and not before. Germans work linear sequentially, first gather all data and then reply to the other party.²⁸⁸ Koreans have a problem with asking for a favor or conveying bad on an E-Mail. Therefore, small talk is one way to lighten up the atmosphere. When communicating through E-Mail, Germans are very subject-oriented, whereas Koreans try to foster the relationship with the recipient. Small talk is quite common for Koreans especially at the beginning of a relationship.²⁸⁹ ‘Urgent’ is often used by Korean as level of importance on E-Mail communication. Koreans expect a confirmation that the recipient received the E-Mail properly. This is a sign of showing appreciation to the sender. Koreans expect a response as soon as new data is available and information about when the next data is going to be available. Koreans even send the exact same E-Mail again to emphasize the urgency, as his boss might need this data.²⁹⁰

Interviewee	Comments
2g2	In Germany, written communication is the standard. When just spoken communication I need to be sure the words can be taken for granted, which can be difficult.
2g3	Written communication is the way to go in Germany. The other person has to convince me why spoken communication is better.
2g10	Both written and spoken communication is important, important formal things via written and easy talking with colleagues.
2g11	Written and spoken communication greatly differs between cultures.

²⁸⁵ Cf. Lewis (2006): 35.

²⁸⁶ Cf. Winkels/Schlütermann-Sugiyama (2000): 146.

²⁸⁷ Cf. Kim (2014): 134–135.

²⁸⁸ Cf. Kim (2014): 135.

²⁸⁹ Cf. Kim (2014): 134.

²⁹⁰ Cf. Kim (2014): 135.

2k2	<p>Spoken communication is much faster and more efficient, but it has no evidence in business sense. When it comes to contracts then written form is better.</p> <p>In Korea, people over 40 prefer speaking. Younger people text a lot via instant messaging like 'Kakao Talk'. Younger people do not see texting, even though it takes more time, as wasting time. Older people see it as a waste of time. Text to voice or voice to text is currently not beneficial because it is easier to speak or read oneself. However, if it would reduce time then it would good, as you could listen to something while doing something else in parallel. The voice need to be in a nice quality to be adapted.</p> <p>Proactive IT supported E-Mail paraphrasing should be dealt with care, because it could change the meaning. So it should rather give advices and the person himself would rewrite his email in a more direct or indirect way.</p>
2k3	<p>E-Mail rewriting could be beneficial, but need special consideration about meanings. Cultures have different understandings of words, e.g. Westerners understand 'fantastic' as 'very good', whereas Koreans understand 'fantastic' as 'flawless'. Therefore, there is a discrepancy in interpretations. It could be helpful to have a 'mouse-over' explanation in the email program that could explain cultural interpretation when receiving emails. It could also give a 'score' of meanings: fantastic Western 80% positive, Koreans 100% positive.</p>
2k6	<p>Koreans prefer communicate via E-Mail these days, because E-Mail is an evidence for fault.</p> <p>Emotional talking is very important when talking face to face. Email should focus on 'hard' communication.</p>
2k7	<p>Automatic translation would be difficult, as meanings depends on context. However, a passive support for translation would be good, as it could speed up the understanding of difficult texts.</p>
2k8	<p>Younger people use messenger rather than calling via phone, even though calling is faster.</p>

2k11	Face to face communication is more efficient, but hard to be very polite.
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Table 19: Comments of Interviewees Phase Two Written Versus Spoken Communication

The interviews correspond to the literature that written versus spoken communication differs between cultures. Age seems to be an aspect that determines the preference also.

The interviewees see a need for IT support and that IT would be a beneficial tool in the area of intercultural written versus spoken communication. It can be derived that an IS could support written versus spoken communication related problems.

P4: An IS could support written versus spoken communication related problems.

5.4.3 Feedback

The way feedback is sought and expected differs greatly between cultures.²⁹¹

Germans prefer and therefore directly encourage constructive criticism. Hereby, their focus is on the situation and not on the person itself.²⁹² Germans expect frequent feedback about their performance and preferable in written form.²⁹³ So when giving feedback Germans always stay with a formal approach.²⁹⁴ For Germans it is seen as professional when employees focus on facts and therefore suppress their emotions. When feedback is given, there is a strict sharing of facts.²⁹⁵ In Korea, you do not criticize or correct older or higher-positioned coworker within your group.²⁹⁶ As the relationship between the manager and the subordinates is like a father-son-relationship, the managers expects a total obedience from his subordinates. Public critique would imply a face loss of the manager and therefore would imply severe consequences for the subordinate. When a manager wants to get feedback from his subordinates open feedback would be the way to go, however, as open feedback is not possible in Korea the manager often invites his subordinates to dinner and fosters them to drink alcohol to make them more open to give feedback. The next day nobody talks about what happened at the dinner.²⁹⁷

Interviewee	Comments
2g2	Direct feedback is essential, both positive and negative feedback. It doesn't help if you give indirect feedback. Feedback can be given both directions.

²⁹¹ Cf. Sully De Luque, Mary F./Sommer (2000): 842–843.

²⁹² Cf. Thomas/Schroll-Machl/Kammhuber (2003): 82.

²⁹³ Cf. Hall/Hall (1992): 63–64.

²⁹⁴ Cf. Hall/Hall (1992): 7.

²⁹⁵ Cf. Thomas/Schroll-Machl/Kammhuber (2003): 74.

²⁹⁶ Cf. Kim (2014): 130.

²⁹⁷ Cf. Kim (2014): 151.

2g3	It is important to understand the feedback system in a culture. In Germany, it is direct feedback. Employees can easily give feedback to the boss.
2g4	The German boss is very open to feedback.
2g5	I would not like anonymous feedback, as I want to hear the honest opinion of the person directly.
2g7	German bosses are not always open to feedback; however, they are always open to give feedback to their employees.
2g8	Giving open feedback is a core part of a German company; therefore, it is important to directly address feedback in both directions.
2g9	I like direct feedback. I would not like anonymous feedback as I want to hear from the person directly.
2k1	Anonymous feedback is very beneficial in Korean businesses. If feedback is too direct than the boss has a bad impression. If employees would be freer to say, what they think the boss would be easily hurt if it were not anonymous. Therefore, IT would be a great way of dealing with that anonymous feedback.
2k2	<p>A Gyopo²⁹⁸, who lived, for example, in the USA and came back to Korea, prefers direct feedback, unlike 'Korean' Koreans.</p> <p>When a boss gives feedback to his employee, the employee just accepts. When an employee gives feedback to his boss, which rarely happens, the boss always discusses.</p> <p>In Korea, anonymous feedback is very important so that the boss does not think badly about the person, who gives negative feedback. The problem is that in school the students are taught to comply with the common opinion and that they should not have a personal opinion. I think IT could be a great help for Koreans to give better feedback and therefore help the organization as a whole.</p>

²⁹⁸ Gyopo (고포): native Korean, who permanently lives in another country

2k3	For Koreans, the higher the experience with foreign cultures the higher is the acceptance of direct feedback.
2k4	The IT should offer an anonymous feedback. This should be regularly, like every two weeks. This would be very helpful in Korea.
2k8	Anonymous might help but difficult to handle, so need to control that it is not going too crazy. People like to talk about negative things, so its spreads very fast. Gender free feedback is an issue. If other see anonymous feedback, then it becomes difficult.
2k11	For Westerners it is hard to foster anonymous feedback, because they expect direct talking. Younger Koreans tend to challenge the boss, so the personality is an issue. However, the older boss is upset when employees have different opinions. So when employees say it in a very polite way its ok, but too direct is not ok.

Table 20: Comments of Interviewees Phase Two Feedback

Literature showed that German and Korean attitude towards feedback is very different. Germans prefer formal and direct feedback, whereas Koreans prefer informal and indirect feedback. The interviews of Koreans showed that there is a wish for anonymous feedback. The interviewees suggested anonymous feedback as a helpful approach. This can easily be realized through IT supported feedback. So it can be derived that an IS could support feedback related problems.

P5: An IS could support feedback related problems.

5.4.4 Discussions

The way discussions are preferred and executed is culture dependent.²⁹⁹

In Germany, discussions are done by bringing in one's own competencies.³⁰⁰ Germans fight argumentatively for implying their opinions. Categorical denials of other's opinions are expressed directly and upfront.³⁰¹ Germans mention facts even though everybody knows

²⁹⁹ Cf. Lewis (2006): 34.

³⁰⁰ Cf. Thomas/Schroll-Machl/Kammhuber (2003): 187.

³⁰¹ Cf. Thomas/Schroll-Machl/Kammhuber (2003): 82.

them already;³⁰² consequently, German discussions are very lengthy.³⁰³ For Koreans the overall harmony in the group is so important that personal needs are not taking into consideration.³⁰⁴ In Korea, nodding is just a sole sign of paying attention and following the discussion, whereas in Germany nodding is understood as a sign of agreement. This is a possible misunderstanding in discussions.³⁰⁵

Interviewee	Comments
2g4	Culture determines the structure of discussions.
2g8	Communication and discussions are essential for a good company. An organization can be successful when there are open and lively discussions between its employees.
2k2	Koreans do not openly ask questions in open groups. The usually only ask questions after the discussions in a private setting. This is because asking too many questions is not seen as good in Korea. This is also because Koreans fear to have a different opinion than the group, as they have been taught just to listen and study in school.
2k8	Foreign bosses are much more open to lively discussions.
2k12	Koreans hide their feelings, whereas Westerner discuss openly.

Table 21: Comments of Interviewees Phase Two Discussions

Literature and the interviews showed that Koreans prefer rather non-lively discussions and reluctant to ask questions, due to the fear of having a different opinion than the group.

As discussions are an important factor for the organizational success, it is essential that information is shared in an efficient and effective way. As Germans and Koreans have a very different preference in terms of discussions IT could be good way of supporting for example the reluctance of Koreans not asking questions in front of others. Therefore, it can be derived that an IS could support discussions related problems.

P6: An IS could support discussions related problems.

³⁰² Cf. Thomas/Schroll-Machl/Kammhuber (2003): 186.

³⁰³ Cf. Hall/Hall (1992): 35.

³⁰⁴ Cf. Kim (2014): 130.

³⁰⁵ Cf. Kim (2014): 129–130.

5.5 Language

Being fluent in a foreign language is an essential asset in today's businesses.³⁰⁶ Lack of speaking skills lead to misunderstandings.³⁰⁷

5.5.1 Business Language

Employees acting internationally are expected to speak English fluently. Mandarin and Spanish are the next two languages that are good to be fluent in.³⁰⁸

It is common that Germans and Koreans use English as a language for communication. English is more similar to German than to Korean, so it is more difficult to Koreans than for Germans to use English. Germans reason the communication problems with Koreans due to lack of English skills.³⁰⁹ Koreans do lack speaking skills in English. This is due to their education in school. The focus at school is on writing, especially on grammar, rather than speaking.³¹⁰ Today's Korea counters this by having more and more native English teachers. When speaking with Koreans, slow speaking and simple sentences are recommended.³¹¹

Interviewee	Comments
2g6	Asians have problems when speaking and writing in English.
2g11	Generally we first try to speak German with the foreigners, but English is also no problem.
2g13	The business language is English, but German is spoken also.
2k2	Koreans have hard times learning English or other Latin languages, because the language structure is so different to the Korean language.
2k6	English is definitely the business language in internationally acting companies.
2k11	The English level is an issue. A low level means that a Korean doesn't ask questions. Confidence is an issue. Anonymous questions through messenger could be nice, that others don't see that I ask a question.

³⁰⁶ Cf. Bolchover (2012): 14.

³⁰⁷ Cf. Kim (2014): 133.

³⁰⁸ Cf. Bolchover (2012): 15.

³⁰⁹ Cf. Kim (2014): 133.

³¹⁰ Cf. Kim (2014): 133–134.

³¹¹ Cf. Kim (2014): 134.

2k12	The English language is an issue for Koreans, as they are generally not that fluent in speaking.
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Table 22: Comments of Interviewees Phase Two Business Language

Good English skills are a mandatory asset in today's globalized world. As Germans and Koreans do not speak English as their mother language, they need to learn it. This has been shown in literature and the interviews.

A support that covers up the lack in language skills would be beneficial. IT could be a good tool for supporting this. Therefore, it can be derived that an IS could support business language related problems.

P7: An IS could support business language related problems.

5.5.2 Local Language

Colloquialism, jargon or slang of a local language are an issue, especially at a virtual interaction.³¹² Results from video or telephone conferences should always be re-confirmed again via E-Mail.³¹³

The German language is a very difficult one. It is logical, but very heavy and hard to learn.³¹⁴ Korean seems to be a very exotic language for western people. The Korean language has some similarities to Chinese and Japanese, but Korean is a distinct language.³¹⁵ In Korea, the family name will be set in front.³¹⁶

Interviewee	Comments
2g6	I work in an international company, so even though we are in Germany we speak English.
2g11	There are versatile dialects in Germany, but generally, we all speak high German. We assume foreigner, who contact us speak German.
2g12	Within the organization, we speak German as we are in Germany. We first assume that foreigners speak German.

³¹² Cf. Bolchover (2012): 16.

³¹³ Cf. Kim (2014): 135.

³¹⁴ Cf. Lewis (2006): 65.

³¹⁵ Cf. Kim (2014): 81.

³¹⁶ Cf. Kim (2014): 6.

2k6	<p>Most foreigners cannot speak Korean. I have never seen a foreigner being able to speak Korean fluently. Koreans speak with Koreans in Korean, even in international companies.</p> <p>Koreans prefer to speak in their local language, as they usually not perfectly fluent in English. Therefore, if a foreigner would speak Korean it would be very nice. However, E-Mails should be written in English, but speaking in Korean, if possible. Speaking Korean as a foreigner makes Koreans feel convenient and it builds up trust.</p> <p>In the business context, Koreans not only use Hangeul³¹⁷ but also Hanja³¹⁸, as Korean words have same writing but a different meaning. This avoids misunderstandings.</p>
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Table 23: Comments of Interviewees Phase Two Local Language

The interviews showed that Germans expect foreigner to speak German in the first place, whereas Korean do not expect foreigners to speak Korean.

It would be beneficial that IT supports the understanding of a local language, so it can be derived that an IS could support local language related problems.

P8: An IS could support local language related problems.

5.6 Dealing with Problems

The way cultures deal with problems greatly differs.³¹⁹

5.6.1 Methodology

The way problems are tried to be solved is culturally dependent.³²⁰

German employees feel comfortable working in much formalized working situations and structures.³²¹ Germans have a strict formalized sequence of actions and when they are interrupted in this sequence, they feel uncomfortable.³²² If a Korean needs help or information to finish a task, he asks a colleague to help him. Consequently, the colleague needs to stop his own work and his tasks need to be postponed.³²³

³¹⁷ Hangeul (한글) is the Korean writing system

³¹⁸ Hanja (한자) is the Korean name for Chinese Characters

³¹⁹ Cf. Lewis (2006): 33.

³²⁰ Cf. Lewis (2006): 118.

³²¹ Cf. Thomas/Schroll-Machl/Kammhuber (2003): 75.

³²² Cf. Hall/Hall (1992): 37.

³²³ Cf. Kim (2014): 143.

Interviewee	Comments
2g1	First, I try to do everything to solve the problem. In case I cannot proceed then I ask my boss or colleagues.
2g6	First, I try to solve to problem myself. When there is no chance to solve myself, then I ask others.
2g7	If I encounter a problem, I first try my personal very best to solve it myself. Only if there is no way, then I ask colleagues. IT would be a help to offer manuals to help me solving the problem and not bothering others.
2g8	With smaller problems, I ask my problems, but when it is a complex problem, I always want to solve myself.
2k3	Koreans ask colleagues about their opinion when they occur a problem. This is because of the group thinking of the Korean culture. It would be good if there would be an IT system that would show, which person has which responsibility and which knowledge or experience. That would greatly reduce time to find the right person.
2k4	Asking a colleague is the fastest way for Koreans. This is important, as time is always an issue in Korea. Here, people ask colleagues in the hope he knows the responsible person for the problem solving. IT could help to find the right person in a faster way.
2k5	Problem solving needs experience. If a Korean does not have that experience, they look for colleagues who have that experience. If there is really no person with that experience, then the Koreans look into a manual.
2k7	<p>When Koreans encounter a problem they ask peers, because they already have the experience, so it is more trustworthy and easier. Koreans do not feel they bother their peers by asking for help by stopping their current work. The asked person cannot refuse to help, as a matter of group thinking.</p> <p>It is easier to ask peers for solving problems than using a manual as manuals are not so detailed on very specific problems, and that's why</p>

	not so trustworthy. However, a computerized speaking manual, like ‘Siri’, would be trustworthy and helpful if it could give correct answers. This would also be beneficial for the company as the employees do not bother themselves and focus on their own work.
2k8	Foreigner boss’ first priority is relying on worldwide best practices, whereas Koreans rely on their personal network to solve problems. Companies have manuals, but they are too big. An IT supported decision tree would help finding the solution in the manual. However, it should be easy to use and faster than looking into the big manual.
2k12	Westerner are easier to solve problems as they have a freer mind.

Table 24: Comments of Interviewees Phase Two Methodology

Literature and the interviews correspond to the facts that Germans tend to be individualistic and first try to solve their problems by themselves, whereas Koreans tend to be collectivistic and first contact their colleagues to solve their problems.

IT could be a good tool to help Germans and Korean in their specific preference to solve problems, so it can be derived that an IS could support methodology related problems.

P9: An IS could support methodology related problems.

5.6.2 Network

One’s intercultural competence is not only defined through individual personalities, skills and attitudes, but also through one’s personal social networks.³²⁴ The social relations in an intercultural environment are defined through one’s strengths of relations with others, the position one has in a network and the composition and size of one’s social network.³²⁵

The ties within a network can be distinguished by:

- “shared location, membership, or attitude (e.g., co-citation, co-participation)
- relations due to roles (e.g., supervisor and supervisee, parent and child)
- relations due to perceptions (e.g., likes, knows)
- interactions (e.g., talk to, get advice from)
- flows of things (e.g., information, disease)³²⁶

³²⁴ Cf. Chi/Suthers (2015): 110.

³²⁵ Cf. Chi/Suthers (2015): 109–110.

³²⁶ Chi/Suthers (2015): 109.

When Germans use their personal network to achieve a goal it is usually regarded as something negative. For Koreans having a good network is an essential asset. Without it, you cannot achieve your goals in Korea. A typical network includes people from hometown, school, university, work, and region and so on. These contacts need to be cared regularly.³²⁷ Korean employees often rotate between departments to be trained in versatile tasks to be more flexible usable. This is especially useful by getting to know many people and to develop its personal network.³²⁸

Interviewee	Comments
2g7	Network is important in Germany, but sometimes has a negative connotation if you use it too often.
2g8	Taking advantage of one's network is always good for oneself, but for others it is seen negatively in Germany.
2k1	In Korea, a good network is essential. You always need to know someone who recommends you to new people: 'I am a friend of XXX' is very important. Interestingly Germans seem very ok with having business transactions with people they communicated first time.
2k3	In Korea, mutual friends are essential to initiate business contact. It is very hard to replace 'the man in the middle'. Cold approaches are usually regarded as spam. The 'man in the middle' fosters credibility for trust building. Therefore, a completely cold approach would be ignored as a matter of not sufficient trust. People do not check 'new' person when introduced by 'man in the middle'. Cold approaching people are regarded as possible cheater.
2k4	Warm contact is important and the 'warm' person would contact the 'cold' person to introduce someone new. This way it feels way smoother. A direct cold contact would feel distant. That's why a warm contact would ease the business. IT could help by having a system that shows the mutual friend and his appreciation by contacting others. Then the men in the middle are less

³²⁷ Cf. Kim (2014): 115.

³²⁸ Cf. Kim (2014): 149–150.

	<p>bothered by introducing to new people. However, the system needs to be trustworthy.</p> <p>If foreigner don't have any 'man in the middle', you should contact the Korean company frequently with information that could make the Korean company curious about. This should be done in a nice but indirect way. First you should introduce your company and show that you have studied about the Korean company in order to ease the trust building.</p>
2k5	<p>A foreigner company should advertise their intercultural experience. Commonalities with Korean companies are essential. It could be useful to state other companies you worked with, preferably Korean companies that the contacted Korean company hopefully knows.</p>
2k8	<p>The importance of a sophisticated network, which is essential in Korea, is difficult to put into numbers.</p>

Table 25: Comments of Interviewees Phase Two Network

Literature and the interviews showed that for Germans the usage of a personal network is rather negative, whereas for Koreans a good personal network is essential.

The interviews proposed the wish that IT would support the personal network. IT could be a great tool in helping connecting people more easily, so it can be derived that an IS could support network related problems.

P10: An IS could support network related problems.

5.6.3 Need for Information

The level of information that people feel comfortable with depends whether the culture is data oriented or people oriented.³²⁹

Germans always need to acquire in-depth knowledge when deciding, because they do not have a sophisticated information sharing network.³³⁰ Koreans, on the other hand, can easily and quickly change their opinion when they feel getting a better profit out of it.³³¹

³²⁹ Cf. Lewis (2006): 590.

³³⁰ Cf. Hall/Hall (1992): 7–8.

³³¹ Cf. Lewis (2006): 507.

Interviewee	Comments
2g5	Much information is important, but you should not neglect your gut feeling.
2g7	In the beginning, Germans need many data to decide. However, when being in the organization, gut feeling can also be a way to decide.
2g8	It is good to have as many data as possible to decide.
2k8	Foreigner need more data for simulations, financial reports, etc. Koreans rather decide through gut feeling and the context.

Table 26: Comments of Interviewees Phase Two Need for Information

Literature and the interviews agreed to the fact that Germans tend to prefer high degree of information, whereas Koreans tend to prefer a lower level of information and focus on the context.

As IT can easily support in increasing the level of information, it can be derived that an IS could support need for information related problems.

P11: An IS could support need for information related problems.

5.6.4 Results

Task and results orientation are greatly different between cultures.³³²

Germans are result oriented, but need a common ground coming to a result.³³³ In Korea, the boss delegates his work to his subordinates. The focus of the result is on the performance of the group as a whole. So efficient and effective teamwork is essential for the organizational success.³³⁴

Interviewee	Comments
2g2	Asian people have a lot of time to come to a result, Germans want results as soon as possible.
2g3	Germans are individual result oriented. They directly want to get a result. This is effective, but not efficient all the time.

³³² Cf. Lewis (2006): 40.

³³³ Cf. Lewis (2006): 227.

³³⁴ Cf. Kim (2014): 142.

2g11	Germany is result oriented, but if a result is not met, the boss has understanding why it did not work out. IT could then enrich the results by information about the way to it.
2g12	Results are important, but boss has understanding when things go wrong. Results are generally individual focused.
2k6	Koreans contribute to one common goal. However, the Korean boss does not have much understanding when things go wrong even though you tried your best.

Table 27: Comments of Interviewees Phase Two Results

Literature and the interviews correspond to the fact that Koreans strive for a common group-oriented goal, whereas the Germans rather go for individual-oriented goals. This obviously becomes problematic when you mix these members by having a different approach.

IT could be a good tool to ease these conflicts. Therefore, it can be derived that an IS could support results related problems.

P12: An IS could support results related problems.

5.7 Hierarchy

The preference of hierarchy is determined by culture.³³⁵

5.7.1 Hierarchy Structure

The hierarchy structure, preferred in an organizational setting, is defined by the culture.³³⁶

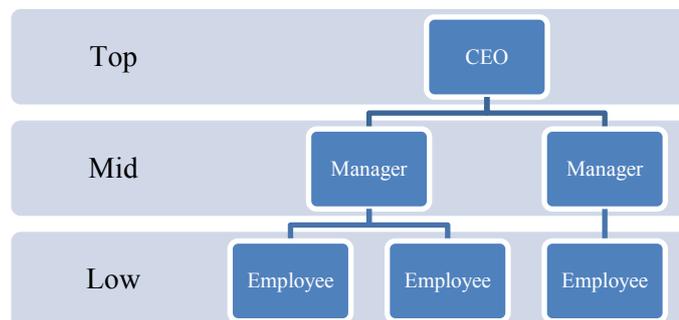


Figure 20: Simplified Exemplary Organizational Hierarchy (Own Depiction)

³³⁵ Cf. Hofstede/Hofstede (2005): 402.

³³⁶ Cf. Hofstede/Hofstede (2005): 23.

The hierarchy structure is in many cases clearly defined in German organizations.³³⁷ In Korea, organizations have a transparent and therefore clear hierarchical structure that everybody has to follow.³³⁸

Interviewee	Comments
2g4	In Germany, the hierarchy is very flat. It feels like a family. However, the top management hierarchy is very steep.
2g6	German hierarchy is very flat. However, it also depends on the boss. I have a boss that insisted on a steep hierarchy.
2g10	The hierarchy in mind is flat in Germany, but the boss lets everybody know he is the boss.
2g11	Officially, the hierarchy is flat, but in the end, the boss is the boss, so going up means steeper.
2g12	The hierarchy is clearly structured, but flat, only in the top it is clearly steep.
2g13	In my business domain, the hierarchy is very steep.
2k1	There is a difference between the real hierarchy and the hierarchy in the mind. In Korea, the real hierarchy is very steep, but in mind, everybody thinks they are same. Therefore, my boss and I are the same, so I don't believe him and his numbers, but I cannot say no, because he is above me. That's why sometimes hierarchical conflicts arise.
2k4	The hierarchy in Korea is very important and needs to be checked prior to doing any action. It would be beneficial to understand the Korean history of hierarchies. Therefore, the intercultural system should offer a nice visualization of the hierarchy in the organization and information about the history of Korean hierarchy.
2k8	The hierarchy in Korea is slowly changing to a more flat one, due to the younger generation that wants to be more independent.

Table 28: Comments of Interviewees Phase Two Hierarchy Structure (Own Depiction)

³³⁷ Cf. Lewis (2006): 223.

³³⁸ Cf. Kim (2014): 179.

Both the interviews and literature point out the fact that in Germany the hierarchy is rather loose, whereas in Korea the hierarchy is very strict.

The interviewees revealed an interesting fact. For Germans the hierarchy in mind is flat, which also corresponds to the lower level management, but the higher management prefers a higher hierarchy. In Korea, the real hierarchy structure is steep whereas in mind they feel everybody is same. Obviously, hierarchical conflicts can arise from this discrepancy. This is depicted in the following table.

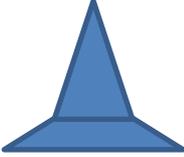
	Real Hierarchy	Hierarchy in Mind
German		
Korean		

Table 29: Real Hierarchy versus Mind Hierarchy (Own Depiction)

As IT can easily support in structuring the hierarchy within an organization so it can be derived that an IS could support hierarchy structure related problems.

P13: An IS could support hierarchy structure related problems.

5.7.2 Information Routing

Delivering a message in an appropriate way is very important in intercultural situations.³³⁹

German information routing is an important manner. Contacting the wrong person, could provoke a conflict.³⁴⁰ In Korean organization, the communication follows strict rules. The communication goes through one's direct boss, who then communicates to his direct boss. So skipping one layer of hierarchy is not possible. This goes from one top to bottom same as bottom up. Orders and feedback all follows this way. As one has to follow the sequence this way is rather time consuming, as all layers of hierarchy has to give confirmation to go to next layer. Positively with this approach is that all layers of hierarchy are informed as all gave their confirmation. The decision process is to that degree standardized that it is set

³³⁹ Cf. Lewis (2006): 64.

³⁴⁰ Cf. Lewis (2006): 223.

which layer needs to confirm. One can only act if he got the confirmation of all relevant layers, but he has no big power to influence the other layers.³⁴¹ In case the team of a Korean manager need technical support, the manager is also responsible to find the correct person that can give that specific support.³⁴² Each manager acts as a communication channel, as he distributes the tasks from his boss and reports the results of his subordinates to his own boss. The hierarchical structure has to be followed in Korea.³⁴³

Interviewee	Comments
2g10	It is ok to skip people and directly go to the person you want to talk to. However, it would be good if the skipped person gets a notice, for example done by IT.
2g12	It is totally fine to skip the hierarchy structure, but IT should notice the skipped person to also share the needed information. In addition, IT can show to find the right person when skipping.
2k3	When foreign companies want to contact a local Korean subsidiary they need to contact the headquarters and then the information is routed to the subsidiary.
2k8	When there is an urgent situation, Koreans are illogical. Even though there is an issue that needs a quick discussion with the headquarters they rather first call other coworkers that they personally know. They think that a better help comes from people that they personally know than from the responsible headquarters. Westerner easily call headquarters even though they do not know the person personally.

Table 30: Comments of Interviewees Phase Two Information Routing

Both literature and the interviews conclude that Germans can skip the hierarchy to route their information, whereas Koreans have to follow the strict structure. Even in urgent situations, Koreans do not skip the structure.

IT could easily route information and, therefore, it can be derived that an IS could support information routing related problems.

³⁴¹ Cf. Kim (2014): 133.

³⁴² Cf. Kim (2014): 150.

³⁴³ Cf. Kim (2014): 150–151.

P14: An IS could support information routing related problems.

5.8 Formalization

The degree formalization is expected is influenced by national culture.³⁴⁴

5.8.1 Responsibility

Responsibilities are related to uncertainty, and this is clearly defined by culture.³⁴⁵

German organizations have a very strong emphasis on compartmentalization. Consequently, decision may have a very slow pace.³⁴⁶ German work descriptions are in many cases strictly defined through rules. Employees have to comply with each of them accordingly.³⁴⁷ In Korean organizations, there are no individual responsibilities or task descriptions. The work and complex tasks are usually done in groups and therefore the responsibilities are to the group.³⁴⁸ In Korea, group responsibilities are a good tool to prevent somebody to lose his face. In case a single person within a group made a mistake, the group is responsible. This helps the single person not being denounced and therefore not losing his face within the group.³⁴⁹

Interviewee	Comments
2g4	The responsibilities are much formalized in Germany. Therefore, IT could be a good support in looking up who is responsible for what.
2g5	Responsibilities are differently viewed among cultures. Other cultures like to have vague definitions.
2g6	Responsibilities are formalized, so it would be beneficial if IT would show the person you are looking for.
2g8	Responsibilities are clearly defined in Germany.
2g9	In Germany, it is very clear who is responsible for that. IT would support finding the right person.

³⁴⁴ Cf. Phil et al. (2010): 64.

³⁴⁵ Cf. Hofstede/Hofstede (2005): 403.

³⁴⁶ Cf. Hall/Hall (1992): 36.

³⁴⁷ Cf. Hall/Hall (1992): 78.

³⁴⁸ Cf. Kim (2014): 142.

³⁴⁹ Cf. Kim (2014): 142–143.

2g10	Usually the responsibilities are set, but when time is an essential factor, responsibilities can be flexible to finish the task. IT could help finding the right person.
2k6	Freshmen in companies only get low-level tasks. The role of the department is very clear, but the role of the members of it is not very clearly defined. Job descriptions are very vague in Korea.
2k7	Smaller companies have a rather vague formalization, bigger one are more detailed. It would be good to have a checkbox (decision tree), to look in the IT who is responsible for what problem. This would be better with IT than always asking the HR department.
2k9	Koreans expect others to do more than their actual contract says. It is like: “if I can I should do it”. This means that, if you have the skill, even though it is not your responsibility, solve the problem.

Table 31: Comments of Interviewees Phase Two Responsibility

Literature and the interviews share the same fact that Germans are tend to be very formal about their responsibilities, whereas Koreans tend to be very vague about them. Germans prefer individual responsibilities and Koreans prefer group responsibilities. Obviously, this can lead to misunderstandings and conflicts.

The interviewees wished for a support by IT. IT can easily structure responsibilities, so it can be derived that an IS could support responsibilities related problems.

P15: An IS could support responsibility related problems.

5.8.2 Contracts

In working situations, the communication should be formalized for both formal and informal interaction. This is usually done through contracts, which both parties can rely on.³⁵⁰

Germans are said to plan every single aspect of any imaginable situation to prevent any problem in advance. The upside of this approach is when a problem occurs everybody directly knows what to do. However, the downside is this thorough planning decreases

³⁵⁰ Cf. Hall/Hall (1992): 75–76.

flexibility and spontaneous actions.³⁵¹ Germans strive for perfection.³⁵² Foreigners see German employees as ‘stickler for order’ and ‘possessed by rules’.³⁵³ Koreans, however, have a relatively elastic concept of truth; therefore, foreigners should be careful by double-checking.³⁵⁴

Interviewee	Comments
2g7	German contracts are extremely formal and lengthy. In other cultures, it is rather vague. IT would be a help in checking the level of formality.
2g8	Germany is a very formal country, everything has to be explained very lengthy.
2g13	Contracts are very formal and detailed in Germany. IT could support that well I think.
2k6	Due to globalization, contracts get more and more detailed. Before it was rather vague and based on mutual trust rather than the written contract. Bigger companies let law firms check the contracts.
2k9	A detailed formalization would help in conflicts, but being too detailed is rude for Koreans as a sign of general mistrust.

Table 32: Comments of Interviewees Phase Two Contracts

Both literature and the interviews correspond to the facts that Germans are much formalized with contracts, whereas Koreans are rather vague and foster relationship-based trust. Globalization, however, let Koreans go more for detailed contracts.

As formal correctness is important when acting internationally, IT could be a great support doing so. So it can be derived that an IS could support contracts related problems.

P16: An IS could support contracts related problems.

³⁵¹ Cf. Hall/Hall (1992): 76.

³⁵² Cf. Hall/Hall (1992): 64.

³⁵³ Cf. Hofstede (1993b): 282.

³⁵⁴ Cf. Lewis (2006): 505–506.

5.8.3 Compliance

The way rules are viewed, is influenced by national culture.³⁵⁵ Little investment in governance practices in an international situation increases the ex-ante and the ex post cost. On the other hand, good practices increase the intercultural success.³⁵⁶

Germans are said to constantly point out when people do not follow rules,³⁵⁷ especially foreigners.³⁵⁸ There are even rules for situations that are extraordinary rare or had never occurred.³⁵⁹ In German organizations, rules are implemented to foster equality. Everybody should have the same rights and exceptions are rarely seen. Here, same rules for everybody are seen as justice.³⁶⁰ Germans refuse making exceptions, because they think they will finally lead to a collapse of their system, as illegal acts would increase.³⁶¹ As Germans are said to be very direct in expressing what they want, customers express precise requirements and expect exact treatment.³⁶² Germany is known for their countless rules and regulations. They are very strict and have to be followed accordingly. In case an employee breaks rules, it may lead to severe consequences. These consequences may even be executed by non-participants. Germans do not question these rules and strictly follow them.³⁶³ In Germany, in case of bribery, the CEO will be sued as being the hierarchical top of the organization. Germans think that the CEO must have known about the bribery when large amounts of money are ‘illegally’ used.³⁶⁴ The Korean culture is based on relationship-based groups, a network made out of people that have relationships to other groups.³⁶⁵ The Korean society has dense networks and lives off mutual favors.³⁶⁶ However, in Korea it is difficult to differentiate between a favor/gift and bribery. Organizations sometimes even expect to be bribed. Koreans are ambivalent about compliance and bribery. Acceptance and refusal can be found on all societal levels.³⁶⁷ Even though bribery is ‘normal’ in Korea, Koreans could feel offended when directly addressing this issue.³⁶⁸

³⁵⁵ Cf. Licht/Goldschmidt/Schwartz (2005): 250.

³⁵⁶ Cf. López-Duarte (2013): 523.

³⁵⁷ Cf. Hall/Hall (1992): 43–44.

³⁵⁸ Cf. Hall/Hall (1992): 52.

³⁵⁹ Cf. Hofstede (1993b): 282.

³⁶⁰ Cf. Thomas/Schroll-Machl/Kammhuber (2003): 75.

³⁶¹ Cf. Trompenaars/Hampden-Turner (2012): 42.

³⁶² Cf. Thomas/Schroll-Machl/Kammhuber (2003): 83.

³⁶³ Cf. Hall/Hall (1992): 75.

³⁶⁴ Cf. Kim (2014): 191.

³⁶⁵ Cf. Kim (2014): 190.

³⁶⁶ Cf. Kim (2014): 87–88.

³⁶⁷ Cf. Kim (2014): 190.

³⁶⁸ Cf. Kim (2014): 191.

Interviewee	Comments
2g1	Compliance is culture dependent. Germans are rather strict, whereas other cultures are rather loose. Therefore, when dealing with other cultures, it would be beneficial if IT would support the differences.
2g5	Germans are very reluctant when it comes to bribery. Even receiving a bottle of wine can be seen as corruption. In the end the entire world bribes, just has a different style and frequency. IT could show these differences.
2g10	Compliance is very important in Germany. The rules and regulations have to be followed. They are all written down, which the employees have to sign beforehand. IT could help in complying to them by proactively warning.
2k6	<p>Larger companies prohibit bribery. Whereas in SME bribery can be a very useful tool, as salary often depend on sales. Therefore, it is obvious that people tend to bribe. This is usually between Korean companies. Bribery between cultures is rare.</p> <p>IT could be a useful support in analyzing data to find bribery, fraud, and so on. This should be reported to the leader so that he can do penalties. There should be a way the other way around. Before treating a customer to a nice restaurant, it would be good to tell the team leader in advance.</p>
2k9	IT would be a good tool in supporting compliance. Then, people can easily look up what they are allowed to do or decide. However, it still depends on the company to 'live' the IT support. IT should also proactively stop non-compliance actions. This prevention would be beneficial for the entire company.
2k10	Unofficial bribery (jobdae) is accepted in Korea. Therefore, a customer rather expect 'special treatment'. Customer don't directly mention it, because they know it is bad. Jobdae is rather for Koreans and foreigner would feel bad. Jobdae also depends on the industry. Korean think everybody does bribery so it is ok also doing so. Koreans expect bribery; westerners do not, so Koreans don't do that with foreigner companies.

Table 33: Comments of Interviewees Phase Two Compliance

Literature and the interviews conclude that Germans and Koreans have a different view on compliance. Germans are more formalized and stick to correct rules, whereas in Korea it is rather flexible.

The interviewees had a positive opinion regarding IT supporting compliance. As IT has the good capability to check compliance, it can be derived that an IS could support compliance related problems.

PI7: An IS could support compliance related problems.

5.9 Leadership

In today's globalization, dynamic and clear leadership is needed.³⁶⁹ There should be a constant investment in the leader's leadership skills in order to sustain an innovation-driven competitive advantage.³⁷⁰ Most books in the field of management are written about leadership.³⁷¹ Unfortunately, there is no standard definition for leadership. Executives and experts do agree on an abstract description that leadership includes a vision, which derives tactics, processes and strategy. In addition, it includes a person that structures, guides and facilitates activities in an organization or group.³⁷² Culture and local customs/conditions have an influence that is too high that leadership can be seen as universal.³⁷³ It is challenging for global leaders to adjust their personal style of leadership to the local circumstances to be able to achieve the organizational goals. Most leadership models are just focused on Western countries (mostly the USA) and therefore just focus on western cultures, values and beliefs. Western employees tend to prefer visible leaders, where East Asians employees tend to prefer leaders that act behind the scene and are less visible.³⁷⁴

5.9.1 Leadership Style

Sophisticated intercultural knowledge is mandatory. It is the key asset for international businesses.³⁷⁵ Having an understanding about the other culture is essential.³⁷⁶

Germans tend to be very direct in expressing what they want from others.³⁷⁷ Korean managers should not have in depth knowledge and therefore often their subordinates have better knowledge about the work. However, in Korea it is not the task of the manager to have better knowledge and not to deal with daily business. Their task is to motivate his

³⁶⁹ Cf. Mendenhall/Bird (2013): 167.

³⁷⁰ Cf. Kim/Yoon (2015): 161.

³⁷¹ Cf. Sanchez-Runde/Nardon/Steers (2011): 207.

³⁷² Cf. Mendenhall/Bird (2013): 167.

³⁷³ Cf. Sanchez-Runde/Nardon/Steers (2011): 212.

³⁷⁴ Cf. Sanchez-Runde/Nardon/Steers (2011): 207.

³⁷⁵ Cf. Liu/Volčič/Gallois (2011): 24.

³⁷⁶ Cf. Liu/Volčič/Gallois (2011): 22.

³⁷⁷ Cf. Thomas/Schroll-Machl/Kammhuber (2003): 83.

group and subordinates in order to fulfil the goals. He delegates tasks to his subordinates and moderates meetings.³⁷⁸ The leadership style of Korean managers is often seen as authoritarian. In this case, the manager is rather harsh to his subordinates. Often the manager forgets that he not only has the right to lead his subordinates but also has the commitment to care for them. However, the issue is that in case of mistakes of the subordinates the manager is also responsible for it as he let the mistake happen.³⁷⁹

Interviewee	Comments
2g1	The leadership style totally depends on the culture. Therefore, it would be good to be culturally sensitive.
2g2	Generally, the boss is very open minded, but when the boss feels there is a conflict, he easily uses his position to decide.
2g3	The boss is the decision maker. IT could offer a dashboard in order to be more sensible to the team, especially when there are different cultures.
2g5	The leadership style is very different between cultures. IT could support the understanding.
2k2	I find the best way of training is treating people nice (military way) until they do wrong. When they do wrong then you should tell them directly. However, I know there are cultural differences. So, the leader should study about how to lead his team culturally sensitive.

Table 34: Comments of Interviewees Phase Two Leadership Style

The leadership style is culture dependent, which was shown by literature and the interviews.

As IT can be supportive in training the leaders in a culture sensitive style, it can be derived that an IS could support leadership style related problems.

P18: An IS could support leadership style related problems.

³⁷⁸ Cf. Kim (2014): 150.

³⁷⁹ Cf. Kim (2014): 151.

5.9.2 Power

Empowerment of the employees differs between cultures.³⁸⁰ Today’s international managers struggle to meet the diverse expectations (power, hierarchy, etc.) of their international workforce.³⁸¹

In German organizations the individual and one’s autonomy is in focus.³⁸² Korean managers expect that their subordinates fulfill their tasks as soon as possible. Sometimes Koreans even run through the building. In case a subordinate just works ‘normal’ speed he shows his manager that he is not given the tasks the priority it deserves. For Koreans interpret this as passive resistance.³⁸³

Interviewee	Comments
2g1	Me, as a manager have individual power. We also discuss in teams, but at the end, I can decide. In Asia, it is very different. The Asian boss is the person who has the power even though there is a lot of teamwork. The people below him have no individual power.
2g7	I have individual power. Only with bigger decisions I need the ok from my boss.
2g10	I have individual power, but with bigger issues need to recheck with my boss.
2k6	Teamwork is very important in Korea. Then Koreans are sent abroad they are usually sent abroad in groups by having a group authority. Whereas Westerners are easily sent abroad alone as they have personal authority. In Korea, only the leader has the authority to decide. In western cultures, a single person has more authority than Korean employees.

Table 35: Comments of Interviewees Phase Two Power

Germans tend to have individual power, whereas Koreans tend to have collective power, which was shown by literature and interviews.

IT could support power by utilizing IT supported tools, therefore, it can be derived that an IS could support power related problems.

³⁸⁰ Cf. Wang/Solan/Xu (2014): 94.

³⁸¹ Cf. Sanchez-Runde/Nardon/Steers (2011): 207.

³⁸² Cf. Thomas/Schroll-Machl/Kammhuber (2003): 87.

³⁸³ Cf. Kim (2014): 152.

P19: An IS could support power related problems.

5.9.3 Separation of Business Environment

The level of separation of one's environment differs among cultures.³⁸⁴

German people are said to be very organized and good planners, and therefore need to consider the context.³⁸⁵ A 'good' Korean manager should be a generalist and, think and act holistic. He should have experience in different departments. He should understand dependencies and foster a solution that serves all instead of focusing on single parts.³⁸⁶

Interviewee	Comments
2g2	Germans focus on their work, but they should rather focus on the big picture.
2g3	In a global setting seeing the global picture is import.
2g6	It is very important to consider other parties that could be involved, but in Germany, that is not always the case. Consequently, there are cultural differences in that matter.
2k8	<p>Korean bosses have to consider a lot of other companies and the general environment in order to balance them all. Korean boss considers all connections to distributors, especially the ones with a long history. Westerners rather focus solely on their own work and area.</p> <p>Korean bosses have to see entire situation who would be affected when making decisions.</p> <p>For bigger decisions, IT can be very useful, (e.g. big data) for seeing how employees think. Systems can make people not lie or fake, because it is very clear. There is a strong need for good IT systems to make data clear. Strong and clear IT system people can trust on good quality data, so hierarchy is less of an issue. To show boss clear data is better and therefore there is no more need to fake data.</p>

Table 36: Comments of Interviewees Phase Two Separation of Business Environment

³⁸⁴ Cf. Lewis (2006): 111.

³⁸⁵ Cf. Lewis (2006): 224.

³⁸⁶ Cf. Kim (2014): 149.

Separation of business environment is culture dependent. Literature and the interviews showed that. Germans rather focus on their personal environment, whereas Koreans need to focus more on a broader scale.

The interviewees wished for an IT support and as IT offers tools supporting in business environment matters, therefore, it can be derived that an IS could support business environment related problems.

P20: An IS could support separation of business environment related problems.

5.9.4 Reliance and Followness

Decisions are made differently around the world, so it is necessary to know these differences.³⁸⁷ It is important to develop an appropriate international oriented team subculture that fosters the strive for common goals and being able to contribute collectively. Group values and norms, leadership styles and group dynamics and behavior play an important role when having an international team.³⁸⁸

German employees tend to expect that the delegation of work has to be formalized and precise.³⁸⁹ For Koreans the relationship between a manager and a subordinate is comparable to the father and son relationship of the five-relationship-model of Confucius. The manager is responsible for his subordinates and therefore has a caring attitude. On the other hand, the subordinate is obedient and loyal. Often this relationship is stronger than the employee has to his organization. Even when manager change the organization, his subordinates often follow him. The manager and the subordinate are strongly dependent to each other. The manager gives feedback about the performance of his subordinates and therefore has influence on their promotions; on the other hand, the manager's performance is measured by the performance of his entire team.³⁹⁰ Independent thinking is not taught at school in Korea. Knowledge is taught by reproducing the answers of the teacher.³⁹¹

Interviewee	Comments
2g1	Culture defines the reliance. In Germany, there is a reliance, but it is not as strong as in Asian cultures. IT could be helpful to support the reliances.
2g4	There is a co-dependency of the boss and his employees in Germany. There are cultural differences however.

³⁸⁷ Cf. Martinsons/Davison (2007): 284.

³⁸⁸ Cf. Wang/Solan/Xu (2014): 94.

³⁸⁹ Cf. Hofstede (1993b): 280.

³⁹⁰ Cf. Kim (2014): 150.

³⁹¹ Cf. Kim (2014): 87.

2g11	In Germany, everybody is reliant to everybody, because only when everybody does his or her job then the organization can be successful.
2k11	Koreans are definitely followers. Korean employees also follow what boss says to make boss happy. A Western boss expects his employees not to just follow him blindly and to be more open to having an own point of view. The Korean culture, however, seems to change slowly by 'accepting' personal opinions.

Table 37: Comments of Interviewees Phase Two Reliance and Followness

Both Germans and Koreans have reliance and followness. In Asia, it is stronger than in Western countries, which was shown by literature and interviews.

IT could offer tools for supporting the reliance and followness, consequently, it can be derived that an IS could support reliance and followness related problems.

P21: An IS could support reliance and followness related problems.

5.9.5 Numbers Versus People

It is essential for managers having a clear understanding of culture in-group and interpersonal relationships.³⁹²

For Germans it is seen as professional when employees focus on³⁹³, but in the end, German decision-making is consensus driven.³⁹⁴ For Koreans the overall harmony in the group is of utmost importance.³⁹⁵

Interviewee	Comments
2g1	Numbers are important, but people also. So in the end I would probably go for people as they have to do the job afterwards.
2g3	Germans are usually numbers people, but in the end the employees have to endure the decision, so it would decrease the morality if the boss decided against them.
2g4	Numbers are very important in Germany, but you should not neglect the people, as they will do the job later on. IT could support in bringing both together.

³⁹² Cf. Sanchez-Runde/Nardon/Steers (2011): 212.

³⁹³ Cf. Thomas/Schroll-Machl/Kammhuber (2003): 74.

³⁹⁴ Cf. Hall/Hall (1992): 35.

³⁹⁵ Cf. Kim (2014): 130.

2g7	German bosses go for numbers, as they have proven they decided logically. However, the team would be demoralized, as they do not get appreciation for their opinions. IT would help bringing numbers and people together.
2k1	Koreans want to have influence in the decision-making process. Koreans trust hard numbers more when they get involved in the process of 'making' these numbers. IT could be a good way of supporting this participation.
2k2	People do business and not the numbers, so people first even though numbers are against it.
2k6	For Koreans only the group opinion is important.
2k8	In Korea, the majority of people can overcome hard numbers.
2k11	Gut feeling and intuition is important for Koreans. That is why hard numbers can be overcome by the majority decision.

Table 38: Comments of Interviewees Phase Two Numbers Versus People

Generally, Germans prefer numbers, whereas Koreans go for people. However, the interviews showed that Germans have anxieties, when deciding for the numbers, that the employees would lose motivation, because in the end they have to do job. Further research should investigate this matter.

The interviewees wished for IT support and as IT can easily bring numbers and people together, it can be derived that an IS could support numbers versus people related problems.

P22: An IS could support numbers versus people related problems.

5.9.6 Concept of Time

The concept of time differs between cultures, especially between Western and Eastern cultures.³⁹⁶

Time has utmost priority for Germans.³⁹⁷ However, when Germans want to come to a decision, a prior lengthy discussion has to be conducted upfront.³⁹⁸ When decisions are

³⁹⁶ Cf. Lewis (2006): 54.

³⁹⁷ Cf. Hall/Hall (1992): 37.

³⁹⁸ Cf. Hall/Hall (1992): 36.

finally made, they are definitely set and subsequent changes are not welcomed. For these final decision Germans feel responsible.³⁹⁹ Koreans are hard working and therefore try everything not wasting time and try to do as most as possible within the given time.⁴⁰⁰

Interviewee	Comments
2g1	Concept of time is culture dependent. Germans need more time to think as Germans are more numbers people. In Germany, decisions are strategic and needs more planning. Asians do need a lot of time to get a confirmation, but want fast decisions.
2k6	In Korea, you have to confirm many, many times until a decision is finally made. Koreans don't want to make mistakes, so employees prepare many reports for the team leader. Reports are seen as a measurement for checking for problems, but not very efficient, so they need to work long time. This is a very time consuming work.
2k8	Owner of Korean companies go for long-term orientation. CEOs go for short terms (3-5 years). Western CEOs in Korea have yearly contracts so they go for short-term goals. Contracts forces them rather than their national culture.

Table 39: Comments of Interviewees Phase Two Concept of Time

Literature and the interviews showed that the concept of time differs among cultures.

IT could support this issue by bringing the different approaches together, therefore, it can be derived that an IS could support concept of time related problems.

P23: An IS could support concept of time related problems.

5.9.7 Trust Own Culture Versus Different Culture

Apart from economic factors, non-economic factors (trust, etc.) also play an essential role in intercultural decision-making.⁴⁰¹

Germans show a different behavior depending on how close the interaction partner is. This ranges from complete strangers to close friends. Becoming a close friend with a German, however, is rarely possible, especially in work situations. Germans usually show little interest in getting to know new people and therefore only exploit few situations doing so.⁴⁰²

³⁹⁹ Cf. Hall/Hall (1992): 35.

⁴⁰⁰ Cf. Lewis (2006): 505.

⁴⁰¹ Cf. Liu/Volčić/Gallois (2011): 24.

⁴⁰² Cf. Thomas/Schroll-Machl/Kammhuber (2003): 80–81.

For Koreans trust is a very important factor. Koreans think that conflicts and risks can be decreased when doing business preferably from the own personal network. Koreans know their members both on work and on personal level, so there is no strict boundary between work and private life.⁴⁰³

Interviewee	Comments
2g1	If the culture is similar to mine than I trust that culture more in the beginning as a very new culture.
2g2	I do not make any culture difference when trusting.
2g3	When it comes to high-tech, I would rather trust an Asian over an African, because Asians are known for that.
2k4	Koreans are not familiar with very new things. That's why they are rather nervous building trust easily with different cultures. Koreans need 'something' in common to be able to build trust.

Table 40: Comments of Interviewees Phase Two Trust Own Culture Versus Different Culture

The literature is consistent with the interview statements. Both Germans and Koreans are a bit reluctant when dealing with new cultures and both need to build up trust.

Trust is an essential factor in dealing with other cultures. So an IS that could support dealing with other cultures by improving the perception of trust would be beneficial, so it can be derived that an IS could support trust own culture versus different culture related problems.

P24: An IS could support trust own culture versus different culture related problems.

5.9.8 Innovation

For organizations, doing business on a global scale it is essential having a competitive edge.⁴⁰⁴ Getting a competitive advantage and competitive success an organization has to focus on innovations.⁴⁰⁵ A clear and sustainable focus on human capital is a great value to productive innovations.⁴⁰⁶ Building good relationships within the organization is a key factor for success for innovations, as pure investments in innovations or employees are not enough.⁴⁰⁷ Multicultural diverse employees foster the innovation capabilities of an

⁴⁰³ Cf. Kim (2014): 116.

⁴⁰⁴ Cf. Sanchez-Runde/Nardon/Steers (2011): 212.

⁴⁰⁵ Cf. Banerjee (2013): 216.

⁴⁰⁶ Cf. Banerjee (2013): 218.

⁴⁰⁷ Cf. Banerjee (2013): 219.

organization.⁴⁰⁸ Leaders should closely look on their employee's flexibility to change and to the recognition of their creativity. In addition, there should be resources that support the innovation, as it is an important capability in the organization that fosters the climate for creativity.⁴⁰⁹ In order to foster the employee's dedication to innovative results and creative problem solving a reward and recognition systems should be implemented within the organization.⁴¹⁰ Leaders should the following aspects into their leadership style in order to enhance the climate for creativity:

- Create a climate in the organization where employees can easily share information and being able to give feedback.
- Employees should be easily able to learn from past failures and successes of the organization and to be able to comment on these practices.
- Employees should understand the important of an innovation-driven climate and therefore should foster inter-organizational and inter-divisional cooperation and collaboration.
- Employees should foster their networks to share best practices.⁴¹¹

The German thinking is very logical, but tends to be complicated.⁴¹² Koreans are very a very creative culture⁴¹³ and enjoy introducing innovations.⁴¹⁴

Interviewee	Comments
2g2	If you do not understand something, IT would be a great tool to support understanding.
2g3	IT would be a great help to make the older bosses understand innovations.
2g7	German bosses are generally open to innovations, but he needs to understand it then. Therefore, IT could be beneficial in helping the boss to understand.
2g10	Innovations are important, so they should be proactively fostered. IT could be a help doing so.

⁴⁰⁸ Cf. Bolchover (2012): 9.

⁴⁰⁹ Cf. Kim/Yoon (2015): 160.

⁴¹⁰ Cf. Kim/Yoon (2015): 161.

⁴¹¹ Cf. Kim/Yoon (2015): 161–162.

⁴¹² Cf. Lewis (2006): 224.

⁴¹³ Cf. Lewis (2006): 504.

⁴¹⁴ Cf. Lewis (2006): 509.

2k13	Innovations are very important in Korea. However, only the boss decides whether to follow an innovation or not. This is especially important as high-tech innovations are difficult to understand for older non-IT-skilled older bosses. So if the boss does not understand the proposal the innovation is rejected. Therefore, IT could be a good tool that to make easier understandable for the boss with easier visualizations.
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Table 41: Comments of Interviewees Phase Two Innovation

Both literature and the interviews are consistent with each other to the fact that innovations are important for an organization to stay competitive.

The interviewees wished for a support in delivering innovations, so it can be derived that an IS could support innovations related problems.

P25: An IS could support innovation related problems.

5.10 Conflict Resolution

The increasing cultural diversity in international teams often lead to misunderstandings and misinterpretations. The result often leads to conflictual situations and a reduced performance.⁴¹⁵ Conflict naturally occur in social interactions.⁴¹⁶ International teams often have culture related conflicts in terms of divergent views of time, the focus on leadership initiatives and the nature of team dynamics.⁴¹⁷

5.10.1 Resolution Directness

The way in which conflicts are resolved is strongly influenced by national culture.⁴¹⁸ When managers encounter conflicts they often do not see that the problem is rooted in cultural differences, as they tend to think that their own concepts also apply abroad.⁴¹⁹

When Germans try to resolve a conflict, they are said to very direct. Talking around the bush tends to be of little importance. Germans like to discuss and focus thereby on logic, mistakes and misunderstandings of the other person to resolve the conflict. Germans tend to be very direct when wanting something so that foreigners usually misunderstand it as almost 'demanding'.⁴²⁰ Koreans are formal in their social relationships⁴²¹ and show a lot of respect.⁴²²

⁴¹⁵ Cf. Fellows/Liu (2015): 246.

⁴¹⁶ Cf. Liu/Volčič/Gallois (2011): 8.

⁴¹⁷ Cf. Sanchez-Runde/Nardon/Steers (2011): 211.

⁴¹⁸ Cf. Morris/Fu (2000): 3.

⁴¹⁹ Cf. Bolchover (2012): 11.

⁴²⁰ Cf. Thomas/Schroll-Machl/Kammhuber (2003): 82.

⁴²¹ Cf. Liu/Volčič/Gallois (2011): 4.

⁴²² Cf. Lewis (2006): 504.

Interviewee	Comments
2g1	Conflicts are not good for the work, so I focus on the facts and try to solve it as soon as possible and it does not matter if the other person feels emotionally attacked.
2g2	Conflicts should be avoided in the first place, but when there is one then direct resolution.
2g4	It is important to directly address the problem, but it is also important to show understanding of the other party. Sometimes it is important to have a man in the middle to resolve the problem. IT could help being that one or look up the best suitable person for that.
2g7	Problems will be addressed very directly in Germany, because Germans want to have a fast solution.
2g11	I want to solve problems directly, but other cultures try to avoid resolution that nobody gets hurt.
2k5	If Koreans have a disagreement with someone, they step back and ask colleagues, why there is a disagreement. They do not ask the person directly to avoid conflicts.
2k9	A conflict resolution between two women is much harder to mediate than a conflict between two men.
2k12	IT can help people to open their mind when face to face is a problem, so it would be a useful support for a conflict resolution.

Table 42: Comments of Interviewees Phase Two Resolution Directness

Both literature and the interviews agreed that Germans prefer direct and fast resolution of conflicts, whereas Koreans prefer to avoid the resolution that nobody loses his face.

As IT could be a good support in resolving conflicts, it can be derived that an IS could support resolution directness related problems.

P26: An IS could support resolution directness related problems.

5.10.2 Resolution With Own Culture Versus Different Culture

National culture defines the way in which others are treated by oneself, whether you rather behave as an individual or as a member of a group and therefore distinguish between in-group and out-group members.⁴²³

Germans employees like to be close to a person before treating them nicely.⁴²⁴ Koreans' concept of 'face' is very important to be considered. So foreign people should be careful dealing with that matter.⁴²⁵

Interviewee	Comments
2g4	There are big differences. Germans are very structured, whereas other cultures are very feisty. Consequently, a culture sensitive resolution is very important.
2g5	I differentiate between cultures. Some want direct resolution; others want to have a man in the middle. Therefore, it is important to consider these differences.
2g7	Germans are more structured when trying to resolve conflicts. Other cultures are unstructured and not always know what they really want. Therefore, it is important to keep that difference in mind.
2g8	I don't make any cultural difference when I solve conflicts.
2g9	I do not make any differences during a conflict resolution with respect to one's cultures. I only make differences between the position in the organization. The higher the position the less direct I try to solve it.
2g10	I don't differentiate between cultures, I always directly try to solve conflicts.
2g11	To me everyone is same, so I resolve the same way, even though I know that it could provoke problems. Germans are fact based and other cultures take things personally when resolving a conflict. IT might be helpful, but need to be smart.

⁴²³ Cf. Hofstede (1993a): 89.

⁴²⁴ Cf. Lewis (2006): 226.

⁴²⁵ Cf. Lewis (2006): 504.

2k1	If a two Koreans have a conflict, they usually go for drinks after the conflict and causally talk. They totally avoid the conflict itself, because time will resolve the problem. If a Korean and a foreigner, especially Westerners, have a conflict, having drinks is not helpful as the conflict is still there after drinking. Therefore, a more direct resolution is necessary.
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Table 43: Comments of Interviewees Phase Two Resolution With Own Culture Versus Different Culture

Literature and the interviews showed that Germans tend to not differentiate between other cultures, but acknowledge it would be beneficial doing so, and that Koreans clearly differentiate between cultures when resolving a conflict.

IT could offer tools to ease the resolution with own culture versus different culture, so it can be derived that an IS could support resolution own culture versus different culture related problems.

P27: An IS could support resolution with own culture versus different culture related problems.

5.11 Work Attitude

Different workplace norms and differences in cultural traditions are the two major problems that pressure successful intercultural collaboration.⁴²⁶

5.11.1 Work Pressure

Supervision practices differ greatly between cultures. Here, the infrastructures of communication, regulation and supervision differs.⁴²⁷

German supervisors are said to constantly teach their subordinates how to do their job;⁴²⁸ nevertheless, German supervision focuses on individual competencies. Here, the supervisor just defines content and borders of the employee's accountabilities. The supervisor does not check every single decision made. Nevertheless, there is a constant checking so that the supervisor is seen as hard working.⁴²⁹ Germans tend to show a high degree of conscientiousness. Consequently, there is little need for external supervision, because Germans do the work they are expected to do. They see their duty in doing a good job as self-evident and therefore foster the diligence in supervision themselves.⁴³⁰ Koreans have a

⁴²⁶ Cf. Bolchover (2012): 4.

⁴²⁷ Cf. Tadesse/Kwok (2005): 15.

⁴²⁸ Cf. Glunk/Wilderom/Ogilvie (1997): 98.

⁴²⁹ Cf. Hofstede (1993b): 280.

⁴³⁰ Cf. Thomas/Schroll-Machl/Kammhuber (2003): 78.

high work pressure as their work is usually determined by others like by colleagues, by the boss, by spontaneous meetings or by unexpected appointments. The priority of the work is also determined by other people and not by the facts of the tasks. Therefore, Koreans cannot really plan their daily work schedule and always need to be prepared for unexpected situations.⁴³¹

Interviewee	Comments
2g5	In Germany, work pressure is quite high.
2g7	In my business domain, supervision is present. The boss always checks the employees. This makes a high pressure not making mistakes.
2k6	Koreans worry a lot to make mistakes.
2k9	Women feel big work pressure. They feel the pressure from the society by 'forcing' them to have babies, care at home, etc. instead of being able to do their work properly.
2k10	Men have stereotypes about women: a woman should concentrate on house, baby, etc.

Table 44: Comments of Interviewees Phase Two Work Pressure

Literature and the interviews showed that Germans, depending on the business domain, and Koreans have a high work pressure.

IT can support that by decreasing the work pressure by taking care of automatable tasks, so it can be derived that an IS could support work pressure related problems.

P28: An IS could support work pressure related problems.

5.11.2 Work Life Balance

The separation of business and private life differs among cultures.⁴³²

In Germany the work life balance tends to be clearly defined, the work and normal life is clearly separated.⁴³³ Even though Koreans have a similar amount of holidays, they basically cannot use all of them, as they feel a high pressure not letting their colleagues and boss down. Therefore, they usually just take one-week vacation per year. This is especially

⁴³¹ Cf. Kim (2014): 143.

⁴³² Cf. Lewis (2006): 539.

⁴³³ Cf. Lewis (2006): 225.

because that the boss do not want to wait too long for a subordinate due to the strong focus on group orientation. Until the return, the group covers for the work. This is a very efficient way, as the Korean group orientation has a good communication and mutual support.⁴³⁴ Private life and working life is not separated in Korea. The Korean manager also knows about private situations and it is accepted that the manager supports at problems in private life situations.⁴³⁵

Interviewee	Comments
2g12	In Germany, There is a strict separation of work and private life.
2g13	There is a separation between private life and work life, but IT would help to cover up with the work when people are absent.
2k7	A positive work-live balance is difficult in Korea. Many Koreans need to work overtime. They always have pressure to finish the data. An IT system could act as a 'buddy' that deals with problems after going home, so the boss could log into the employee's PC to look for the data. That might feel like checking rather than helping. However, the IT could look for the data and ask the employee for the permission to send the boss rather than giving the boss the chance to look for himself. This also lessens the stress for the employees that they do not have to look for the files themselves and send it to the boss as the IT 'buddy' just needs permission. It would be like a smart shared folder. Big companies pay overtime, whereas smaller companies don't.
2k8	Younger Koreans become slowly more 'westernized'. So the work life balance becomes more important. So in future less Koreans are willing to do overtime work.

Table 45: Comments of Interviewees Phase Two Work-Life Balance

Literature and the interviews showed that in Germany work and life tends to be clearly separated and in Korea tends to be a rather vague concept.

IT was wished as a support in the area of work life balance, so it can be derived that an IS could support work life balance related problems.

P29: An IS could support work life balance related problems.

⁴³⁴ Cf. Kim (2014): 143.

⁴³⁵ Cf. Kim (2014): 151.

5.11.3 Mindset

The mindset is greatly influenced by culture, for example, the mindset towards man versus woman in a working environment differs.⁴³⁶

Germany has a low rate of women participation in businesses.⁴³⁷ In Korea there is a high competitive spirit.⁴³⁸

Interviewee	Comments
2g5	There are significant other mindsets between cultures. Especially, a different mindset towards work.
2g9	Men are usually in top positions, but in the mind, there is no difference between men and women. The gender does not determine skills or anything.
2k2	Gender is an important issue in Korea, but one's potential is also important. Gender issues depend on the business domain. Gender discrimination is not punished in Korean and therefore happens a lot. The Korean system is not yet prepared as the western system. If the system doesn't stop gender discrimination support, men do discriminate. Korean education doesn't focus on any discrimination issues.
2k6	Koreans feel comfortable working with people from cultures who also have a collectivistic mindset.
2k8	Gender does not matter so much anymore in Western companies. Human resource departments in foreign companies have many female employees as well as female bosses. In the sales department, there are usually male bosses, whereas in the marketing department there are often also female employees. The supply chain department is definitely male dominated. In Korean companies the situation regarding gender equality it is rather different to Western companies. In Korean companies, there is a definite glass ceiling for women. Even though they are smart and well educated, there is very little chance to get a high position. One reason why is that women usually do not want to work overtime, whereas men are ok doing so, especially because overtime is

⁴³⁶ Cf. Hofstede/Hofstede (2005): 402.

⁴³⁷ Cf. Worthley et al. (2009): 1517.

⁴³⁸ Cf. Lewis (2006): 504.

	<p>seen as a duty in Korea. Men have to do army service in Korea, so they are more used to the hierarchy in Korean companies. Women did not army service, so that is why they hate working overtime. Korean women are more emotional, so their emotions go up and down more than men, so men see that as a weakness.</p>
2k9	<p>Traditionalism is important issue for organizations in Korea.</p> <p>Gender is a big issue in Korea, even though it is getting better very slowly. Men say women cannot concentrate as much as they can.</p> <p>A female boss is more emotional and decides more subjectively. So you should not offend her emotional feeling. When male staff have a female boss, then the men complain about the boss' emotionality.</p> <p>Women do not get big projects, because men think they can get pregnant. Therefore, women get lighter work and men do not feel bad about that. In case a woman has been successful in entering a bigger project then the woman is seen as an equal member. However, before getting into a bigger project, women feel the inequality in the companies.</p> <p>There is a clear glass ceiling for women in Korea. A woman has problems to get into the top management as it is a male dominated network in Korea.</p> <p>More and more younger people go for gender equality, so woman can also get good job and have their own career.</p>
2k12	<p>Men and women are not equal in a working environment in Korea. Opportunities are limited to women; men can more easily climb up the career ladder. Female consultants are not as trusted as men. People don't open their minds as much to women as to men. People don't see woman as a counseling person, they rather trust men. Men take more time to open mind to woman than vice versa. A gender-free IT system might be difficult, but might be beneficial.</p>

Table 46: Comments of Interviewees Phase Two Mindset

The interviews showed that there are versatile mindsets. Gender appears to be a major issue. IT could offer a support in improving the mindset to a better performance, so it can be derived that an IS could support mindset related problems.

P30: An IS could support mindset related problems.

5.11.4 Rewards

The preference on how cultures expect the allocation of rewards differs between different cultures.⁴³⁹

German employees are said to define themselves through their performance.⁴⁴⁰ In Germany, the years spent in one particular organizations is only of little importance in determining each rewards.⁴⁴¹ Working overtime is strictly regulated by the government.⁴⁴² Bonuses are regulated through the government.⁴⁴³ In Germany, the gender wage gap is not significantly wide.⁴⁴⁴ In Korea, the seniority principle is still very present, even though globalization is taking place in Korea's business world.⁴⁴⁵

Interviewee	Comments
2g5	The rewarding system depends on the culture. IT could help in order to give the culture specific rewarding to the employee.
2g7	German business is mostly performance driven. A person who works a lot and does a good job can make good money. IT can easily check the performance.
2g9	Performance driven rewarding would motivate the employees to work harder.
2g10	Rewarding depends on the organization and the government. In my domain, the rewards are set, but sometimes there are bonuses.
2k10	Even though a woman has the same job performance as her man counterpart, she is not getting the same appreciation.
2k13	Rewarding systems are important especially in international acting organizations. Western people prefer performance based rewarding whereas Koreans prefer seniority based rewarding.

Table 47: Comments of Interviewees Phase Two Rewards

⁴³⁹ Cf. Kim/Park/Suzuki (1990): 188.

⁴⁴⁰ Cf. Thomas/Schroll-Machl/Kammhuber (2003): 75.

⁴⁴¹ Cf. Hofstede (1993b): 281.

⁴⁴² Cf. Hall/Hall (1992): 70.

⁴⁴³ Cf. Hall/Hall (1992): 70.

⁴⁴⁴ Cf. Estévez-Abe (2012): 80.

⁴⁴⁵ Cf. Kim (2014): 69.

Literature and the interviews agreed to the fact that cultures have different preferences in rewarding.

IT can easily calculate rewarding, so it can be derived that an IS could support rewards related problems.

P31: An IS could support rewards related problems.

5.12 Technology

Culture has a recognized impact of the usage of information systems.⁴⁴⁶ IT shape the relationship between cultures.⁴⁴⁷ Yet, the adaption success of IT is bound to the country specific usage.⁴⁴⁸

5.12.1 Technology Acceptance

The taste and preference of products differ between cultures.⁴⁴⁹ This is important, as culture influences the technology acceptance.⁴⁵⁰

Germans stay with things they are used to and are reluctant to new things. Germans need good reasons to change.⁴⁵¹ Koreans are generally adaptable towards new things.⁴⁵²

Interviewee	Comments
2g4	Technology acceptance is very culture specific. Some cultures are more technology focused like the Asians, whereas other cultures are more people oriented like Southern European.
2g6	Germans are not very open to new technology, because they worry a lot about privacy issues. On the other hand, Asian countries are very eager to try any new technology.
2g8	The usage depends on the culture. In addition, age could also be a good factor to determine the acceptance.
2k13	Koreans are more open to new technology as Westerners, but they have to be Korean culture specific.

Table 48: Comments of Interviewees Phase Two Technology Acceptance

⁴⁴⁶ Cf. Heinzl/Leidner (2012): 109.

⁴⁴⁷ Cf. Liu/Volčič/Gallois (2011): 13.

⁴⁴⁸ Cf. Martinsons/Davison (2007): 284.

⁴⁴⁹ Cf. Wang/Solan/Xu (2014): 93.

⁴⁵⁰ Cf. Cardon/Marshall (2008): 107.

⁴⁵¹ Cf. Lewis (2006): 231.

⁴⁵² Cf. Lewis (2006): 504.

Literature and the interviews showed that there are differences in terms of technology acceptance.

IT can support technology acceptance by improving the opinion towards it, so it can be derived that an IS could support technology acceptance related problems.

P32: An IS could support technology acceptance related problems.

5.12.2 Usage of Software

When developing software it is important also to consider the culture of possible users.⁴⁵³

Germans are generally cautious with new things and prefer clearly defined structures.⁴⁵⁴

Koreans are careful regarding foreign things.⁴⁵⁵

Interviewee	Comments
2g4	Culture determines the usage of software. Europeans usually go for American software products, whereas Asians prefer their own developments.
2g6	The usage of software is sometimes restricted, as the organization tells the employees what to use, but the tendency is that Germans prefer American products, whereas Asians use their own products. One reason is because of the language, because American products have problems with Asian languages.
2k3	Koreans do not like forum systems and issue tracking. Koreans like bulletin board system. The functionality is same, but it is about the presentation and visualization. That's why Koreans are not familiar with forum system. Koreans find information in bulletin board systems but not in forums. This is difficult to resolve, especially when internationally you use a common system.
2k8	Old people dislike IT services. It is hard to make old people in Korea use IT. Young generation believe IT is essential skill. Koreans bosses have less IT skills, so juniors have to prepare reports, etc. for them, but juniors don't want to do it as they want to be independent.

⁴⁵³ Heinzl/Leidner (2012): 109.

⁴⁵⁴ Lewis (2006): 230.

⁴⁵⁵ Lewis (2006): 504.

	<p>Taking SAP as an example, Koreans want to see the entire process lying beneath in order to increase the trust in the software.</p> <p>Today's managers 'just' sign papers and in future younger generation' bosses are also good at IT and make good usage of it.</p>
2k9	<p>Koreans have no actual special preference for their own software or website. However, Korean software is just very well customized to Korean culture, so that is why Koreans use it. Therefore, culture specific customization is the key to success in Korea. When Korean need information about local things they use Korean software or social network services. For international things, they use google etc. Koreans expect foreign companies to customize their software to the Korean culture. Another reason for using a specific software is that Koreans are very collectivistic, so Koreans use software, because many other Koreans also use it.</p>

Table 49: Comments of Interviewees Phase Two Usage of Software

The interviews showed that Koreans are generally open to new things, but it should be cultural customized.

IT can, for example, easily transform its GUI and therefore be culture specific, so it can be derived that an IS could support usage of software related problems.

P33: An IS could support usage of software related problems.

5.13 Knowledge

Especially in today's globalization, knowledge can be a significant competitive advantage and therefore needs to be considered.⁴⁵⁶

5.13.1 Skills

The focus on which skills are important to have differs between culture.⁴⁵⁷

Germans see work as a serious matter, so skills should be available doing so.⁴⁵⁸ Koreans are generalists as they are usually trained for several tasks so that they are more flexible and it is easier to replace the absence of a coworker.⁴⁵⁹ In Korea the university a person went to is more important than the actual degree he earned.⁴⁶⁰

⁴⁵⁶ Cf. Crook et al. (2011): 453.

⁴⁵⁷ Cf. Lewis (2006): 138.

⁴⁵⁸ Cf. Lewis (2006): 231.

⁴⁵⁹ Cf. Kim (2014): 143.

⁴⁶⁰ Cf. Kim (2014): 87.

Interviewee	Comments
2g7	IT would be a good help in generating a smart knowledge base that helps the organization stay competitive.
2g11	It is important what the skills are and not where the person came from. IT could generate knowledge by supervising the employee, but the problem would be privacy. Apart from that, it would be a great idea if IT could learn by itself from the employees acting.
2k8	If people are retired, the knowledge is gone, in case there are no counter measures to save the knowledge. Therefore, tutorials/movies about how to use software would help. Artificial intelligence could 'extract' knowledge how to do things. Therefore, it could learn how to behave like the employee to a certain extend. AI can soon make decision based on financial data. In short future, AI can generate specific information to support the decision maker, and in long future it could make own decisions. AI should just support and not solely do things on its own. Obviously, AI has limits. AI cannot 'feel' all connections/networks in Korean sense.
2k9	Women in Korea can overcome their lack in skills by having a good looking.
2k10	A reason why women have problems being hired is that women in Korea tend to change their jobs more frequently than men. Therefore, the companies rather hire men, as they are more 'loyal' to the company. In addition, women do get less training in companies as companies think women could easily leave after getting the training.

Table 50: Comments of Interviewees Phase Two Skills

Literature and the interviews showed cultural differences in terms of importance of actual skills.

IT can support in acquiring the needed skills, so it can be derived that an IS could support skills related problems.

P34: An IS could support skills related problems.

5.13.2 Share

The openness regarding sharing information and knowledge is culture dependent.⁴⁶¹

Germans think that knowledge is power and therefore are a bit reluctant sharing it.⁴⁶²

Koreans also agree that knowledge is power, but Koreans would like to get an appreciating sharing something.⁴⁶³ Based on the Confucianism, which had high influence on Korean history, knowledge was, already in old days, highly regarded and is an essential status for each individual in the society. In today's Korea a highly educated society is an essential asset as Korea has almost none natural resources.⁴⁶⁴

Interviewee	Comments
2g11	It would be great if there would be a central place that stores the knowledge of the organization that can be shared among the employees. IT could be helpful, especially because sharing is not that common.
2k1	Knowledge is important today's businesses. Therefore, an Idea Management System would be beneficial so that different cultures can easily share their various ideas. This would especially positive as different cultures have different problem solving ideas so it would broaden the thinking of the organization.
2k7	Knowledge sharing is very important in Korea. Koreans use SNS a lot to share information. An internal wiki could help, like SharePoint. Koreans, however, need appreciation if they upload and share their information. They want to benefit from the group thinking.
2k9	Knowledge is important, so the information about the creator of the knowledge should be genderless, so that men do not get the feeling that the knowledge from women is less valuable.

Table 51: Comments of Interviewees Phase Two Share

Both Germans and Koreans are a bit reluctant regarding sharing knowledge, so IT could be good way improving the sharing intention.

⁴⁶¹ Cf. Lewis (2006): 146.

⁴⁶² Cf. Lewis (2006): 230.

⁴⁶³ Cf. Lewis (2006): 507.

⁴⁶⁴ Cf. Kim (2014): 85.

IT offers tools for sharing knowledge in an easy and efficient way, so it can be derived that an IS could support share related problems.

P35: An IS could support share related problems.

5.13.3 Privacy

The degree private matters or privacy is sought is culture dependent.⁴⁶⁵

Private matters are very important to consider in Germany.⁴⁶⁶ Koreans are generally open minded, but a bit reluctant towards foreigners.⁴⁶⁷

Interviewee	Comments
2g4	Privacy is very important in Germany. Everybody talks about it, but many do not act like that. Therefore, IT would be a great support by proactively stopping privacy related violations.
2g7	Privacy is important, especially in my business domain. It would be a good way if IT could proactively stop violations.
2g13	Privacy is essential in Germany to consider. I think it is good if IT could reinforce that everybody pays attention to privacy issues.
2k13	Koreans do not really care about privacy issues. Westerner are very sensitive in this matter though.

Table 52: Comments of Interviewees Phase Two Privacy

Literature and the interviews agreed to the fact that Germans are sensitive and Koreans are open minded regarding privacy issues.

IT could easily adjust privacy issues, therefore, it can be derived that an IS could support privacy related problems.

P36: An IS could support privacy related problems.

⁴⁶⁵ Cf. Lewis (2006): 8.

⁴⁶⁶ Cf. Lewis (2006): 224.

⁴⁶⁷ Cf. Lewis (2006): 504.

The figures shows that Western and Asian cultures have a very different interpretation of colors.

Interviewee	Comments
2g2	Color is very culture specific. Therefore, IT would be a nice tool to recolor it in order to avoid misunderstandings.
2g3	Color interpretations differs in cultures. Black means sorrow in Germany, whereas in Asia it is white. IT would be a great help.
2g4	In our company, the usage of color is defined through corporate identity. However, culture related interpretations are important and can bring misunderstandings. Especially in the Asian region, color is a rather sensitive topic. Paying attention to culture related interpretations shows respect to the other culture.
2g6	You have to be careful when dealing with color and cultures. IT could give hints when using color.
2g9	IT would be a good support showing which color means what in which culture. It could be also good if there would be a recoloring.
2g11	Color is culture dependent. It would be good if IT could recolor it depending on who is receiving the visualization.
2k1	It would be beneficial to have a list of cultural interpretations of color. Then it is easier to avoid misunderstandings.
2k7	It is very important to know the preference of colors.

Table 53: Comments of Interviewees Phase Two Color

The interviews agreed that color is a very important aspect when dealing with other cultures. They wished for an IT support helping in this matter.

IT can easily change colors according to the cultural preference, so it can be derived that an IS could support color related problems.

P37: An IS could support color related problems.

5.14.2 Location of Information

The cultural differences in visualizations are not limited to the color scheme. Thus, the arrangement of information is also very different.⁴⁷¹

Western cultures prefer here a polarized structure (left / right and up / down). Asian cultures have a more holistic approach. Here information is preferably displayed in the middle of a visualization, the process being carried on different levels (foreground / background).⁴⁷²

Interviewee	Comments
2g2	In Germany, the most important is usually in the top area. In other cultures, it is different. Therefore, IT can easily change the position.
2g3	IT would be good in supporting the location of information.
2g4	IT would be a good support in culture specific restructuring.
2g6	Location of information is different in cultures, so IT would be a good help in avoiding misunderstandings.
2k7	The location of information is different across cultures. Where to put the most important information depends on where you come from. When exchanging reports with other cultures it would be beneficial to reallocate the important information by IT. However, I think it might be difficult that the IT finds the 'importance' in the text. A preset level of importance would be good, so a culture specific one-click report could be generated.

Table 54: Comments of Interviewees Phase Two Location of Information

The interviews agreed that location of information is an essential aspect when dealing with other cultures. They wished for an IT support helping in this matter.

IT can easily change the structure according to the cultural preference, so it can be derived that an IS could support location of information related problems.

P38: An IS could support location of information related problems.

After all propositions have been derived, the development of the final conceptual model will follow.

⁴⁷¹ Cf. Meng (2013): 65.

⁴⁷² Cf. Meng (2013): 76.

6 Development of the Final Conceptual Model

In the following, ten cases will be introduced that cover the propositions derived in the initial conceptual model. Within these cases, common intercultural problems will be addressed and possible support processes will be suggested. The cases are based on the initial case from the initial conceptual model.

The development of the final conceptual model peruses to include the five possible benefits, which a proper DSS should have:

- Improve individual productivity
- Improve decision quality and speed up problem solving
- Improve interpersonal communications
- Improve decision-making skills
- Increase organizational control⁴⁷³

6.1 Case Studies

The support processes are derived and therefore based on the initial model, the literature of German and Korean behavior, the interviews and on the discussion about the interviews. The cases do not follow any sequence; they are closed cases in itself.

6.1.1 Structure of Cases and Key of Support Processes

The cases follow the following sequence:

Final Conceptual Model:

- 1) Case Description, with focus on intercultural problems
- 2) Table with problems and possible support processes
- 3) Description of the possible support process
- 4) Discussion about needed information and involved parties
- 5) Figure of support process

The following figure depicts the key of the suggested support processes.

⁴⁷³ Power (2002): 32–33.

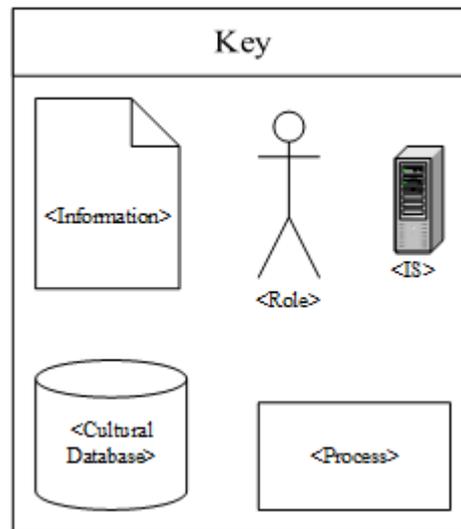


Figure 23: Key of Support Processes

The information includes information or documents like an E-Mail. The cultural database consists of culture specific data like culture specific color interpretations. The role is either a manager or employee, and it is depicted when the role is in focus. The IS is either IT or an app, and it is depicted when the IS is in focus. Lastly, the process depicts the actual support process.

6.1.2 Case One: Getting a Permission

Mr. Mustermann has to get a permission from a Korean executive, Mr. Kim, boss of a different department. In Germany, Mr. Mustermann can directly go to the responsible executive and ask him directly in order to get the permission. Consequently, Mr. Mustermann goes to the Korean executive in the different department. After a discussion with the Korean executive's secretary that Mr. Mustermann cannot directly talk to Mr. Kim, Mr. Mustermann eagerly insists talking to him directly and provokes a conflict.

Case	Common Problems	Possible Support Processes
1	Different hierarchy structure Different understanding of responsibilities Difference in individual power Different styles of information routing	Hierarchy structure Responsibilities Power Information routing

Table 55: Case 1 Description (Own Depiction)

Therefore, Mr. Mustermann needs to understand the differences in the Korean organization to get a permission. So first, he needs to know the differences in the hierarchical structure within Korean organizations. The next important information he needs to know is who is responsible for which area. In addition, it is mandatory to understand, even though someone is responsible for one area, how much individual decision power each person has.

In the end, it is also essential to know how information is routed within an organization. In the following, the possible support processes are discussed.

6.1.2.1 Hierarchy Structure

IT could support the situation by having the current hierarchy and the cultural hierarchy preference as an input, matching both and giving the hierarchy matching as a result. This could result into a mismatch, like the situation in the case, and therefore could give Mr. Mustermann a suggestion how to appreciate the Korean hierarchy structure appropriately. The process could for example show Germans the entire structure, as they can skip levels, and show Koreans only the levels they can contact, as they have to follow the levels strictly.

The following figures depicts the respective process.

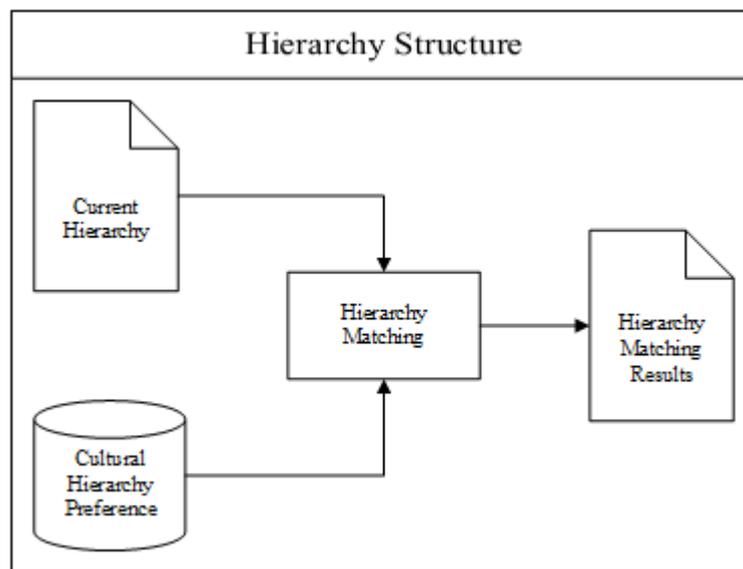


Figure 24: Hierarchy Structure (Own Depiction)

6.1.2.2 Responsibilities

IT could support the situation by having the problem description, the responsibilities of the employees and the cultural responsibilities preference as an input, matching all information and suggesting the person/group that is responsible for the problem. This process could be beneficial for Mr. Mustermann as for Germans prefer individual responsibilities, whereas Koreans prefer group responsibilities. This process would save him time and problems as he do not have to ask colleagues that are not responsible for his problem by directly knowing who is responsible for his problem.

The following figures depicts the respective process.

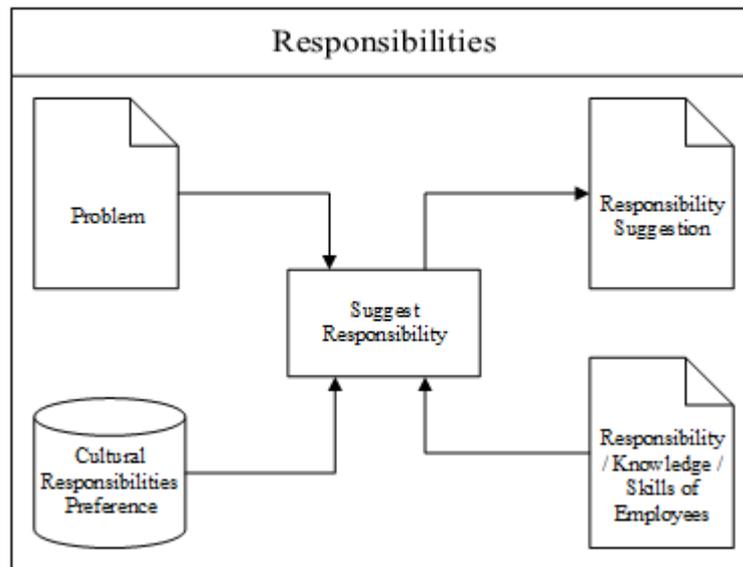


Figure 25: Responsibilities (Own Depiction)

6.1.2.3 Power

IT could support the situation by having the power level and the cultural power preference as an input, matching both and giving a suggested power level as a result. The power level and the cultural power preference can be very different. Mr. Mustermann prefers a high level of individual power; however, in contrast Koreans prefer a low level of individual power and, therefore, foster a high level of group power. This process, therefore, could help him to adjust to the appropriate power level and be beneficial to behave accordingly.

The following figures depicts the respective process.

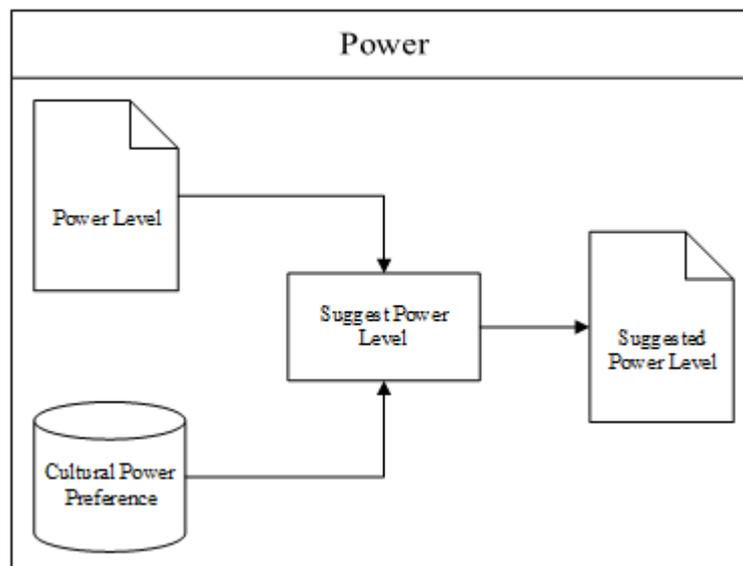


Figure 26: Power (Own Depiction)

6.1.2.4 Information Routing

IT could support the situation by having the information, which need to be routed, and the cultural information routing preference as an input, calculating suitable information routing and propose a possible routing as a result. The following figure depicts an example routing situation.

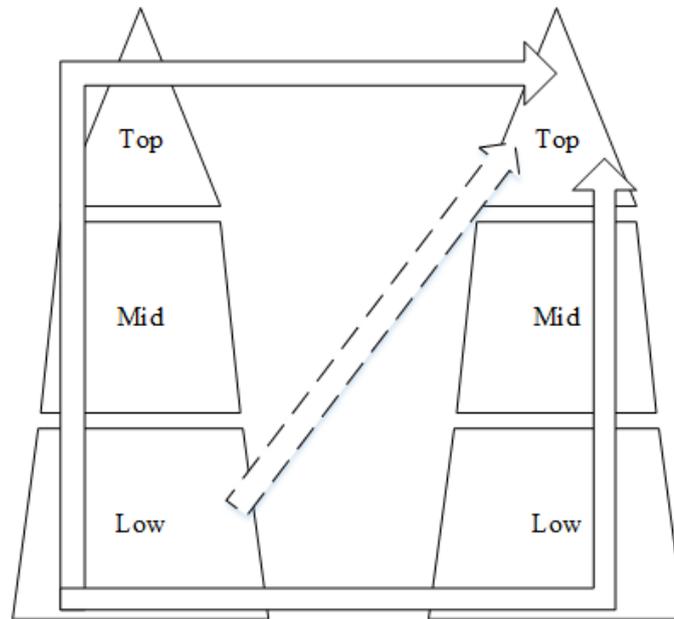


Figure 27: Ways of Information Routing in an Organization (Own Depiction)

The dotted line is the routing Mr. Mustermann tried to do, him as being low and going directly to the top. As the case proposed, it resulted in a conflict. Therefore, for Koreans information should follow a predefined routing and the levels of hierarchy cannot be skipped. Consequently, Mr. Mustermann should have gone from his department to the next higher level that again goes to the next higher level, which finally reaches the same level of hierarchy and then the person should contact Mr. Kim, the executive of the other department. Another way would be directly contacting the same level of hierarchy of the other department that then goes up the hierarchy to the top. Therefore, the process could propose an appropriate routing with its respective contact persons.

The following figures depicts the respective process.

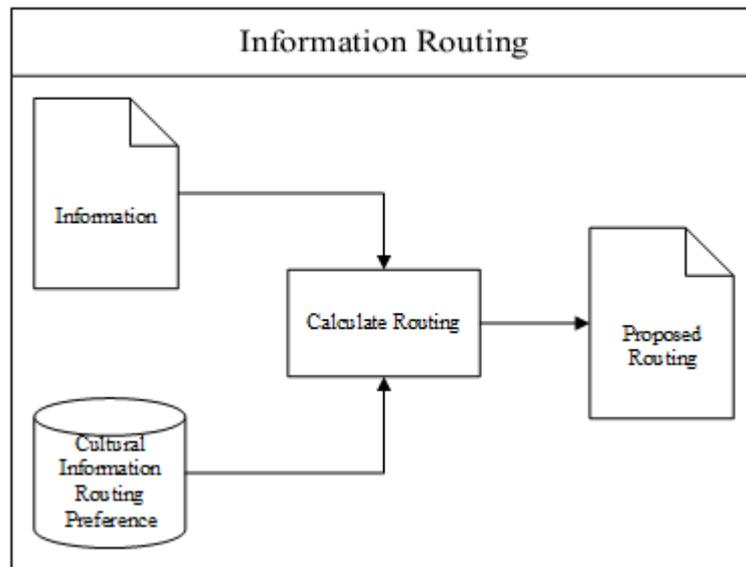


Figure 28: Information Routing (Own Depiction)

6.1.3 Case Two: Misinterpretation of Visualizations

Mr. Mustermann has to do make a visualization and has to send it to his Korean colleagues. Obviously, he develops it the way he learnt it in Germany. After he sent it, his Korean colleagues ended up having many misunderstandings due to a different interpretation of color and a different interpretation of importance of location of information.

Case	Common Problems	Possible Support Processes
2	Different interpretations of color Different interpretations of importance of location of information	Color adjustment Relocating of information

Table 56: Case 2 Description (Own Depiction)

Therefore, Mr. Mustermann needs to understand the differences in different interpretations of color and different interpretations of importance of location of information. In order to avoid severe misunderstandings and to improve the efficiency, it is essential to understand the differences. In the following, the possible support processes are discussed.

6.1.3.1 Color Adjustment

IT could support the situation by having the visualization and the cultural color interpretations as an input, the recoloring as the process and the cultural adjusted re-colored visualization as a result.

The fact that the interpretation of color depends on the national culture of the viewer three options for dealing with this can be derived:

- 1) The first possibility is to avoid the usage of colors mostly to avoid misunderstandings in advance. One approach is to make the visualization colorless and only use blacks, whites, grays.

2) The second possibility is that an organization agrees on a uniform coloring scheme within the organization and so to create an information design policy. Due to the same colors are used, it increases the intelligibility and the speed of the decision-making.

3) The third option would be, derived in the context of this thesis, that visualizations are previously enriched with metadata. This metadata consists of the desired coloration with respect to the creator of the visualization. If these visualizations are exchanged with other cultures, the color will be adjusted depending on the recipient's culture. Each employee can maintain its desired color preference worldwide.

The following figure shows the three options and their relation. The X-axis shows the degree of culture-specific adaptation of a visualization. The Y-axis shows the degree of utilization of the color spectrum. The colorless approach uses only a very small part of the color spectrum and thus has only a small culture-specific adaptation. This approach prevents culturally based misunderstandings of colors in advance as not to very little color is used. The problem of this approach is, due to its limited use of color, it restricts the creator of visualization significantly. In this approach, however, raises the question: If the human is capable of seeing color, why not using it? An information design policy uses a limited portion of the color spectrum, as the company limited to some specific colors. However, this approach does not solve the problem of possible misinterpretation when visualizations are exchanged between different companies. Another problem with this approach is that it has to be agreed on a company-wide color scheme. Indeed, it may happen that the company's internal policy is contrary to one's typical color interpretation.

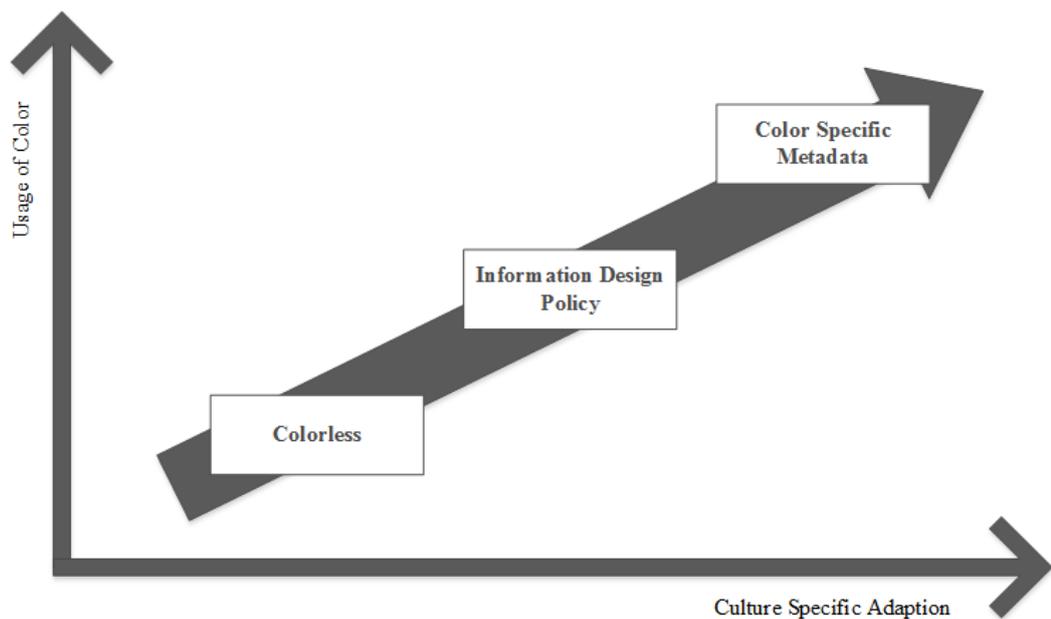


Figure 29: Culture Specific Adaptation and Usage of Color (Own Depiction)

The metadata approach would utilize the entire color spectrum, because the colors are automatically adjusted depending on the recipient of the visualization. The following figure schematically illustrates the procedure of use of metadata.

First, clearly delineated concepts need to be defined, which are enriched later in the visualizations accordingly with color. This definition will be discussed with the partner and is adjusted if necessary. As a result, the concepts with the associated data are linked. Then, the concepts of the desired color are enriched by metadata. Then, the visualizations are created and exchanged with the partner. Based on the metadata, the visualizations are automatically recolored.

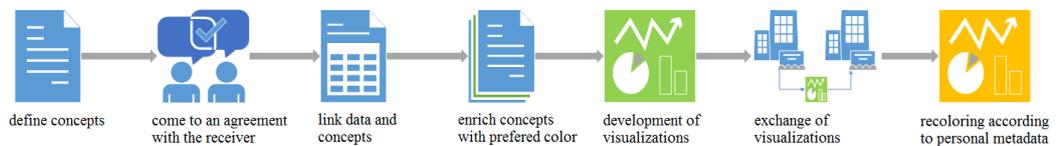


Figure 30: Process of Color Metadata (Own Depiction)

One potential problem is that the parties have a different understanding to the relevant concepts. However, when this definition can be carried out successfully, there is no culturally conditioned misunderstandings regarding the color, because every visualization is shown in the desired color of the recipient.

If one continues this thought, publicly available color interpretation database would be convenient here. For example, the metadata could exchange company independent and technology-independent over the data exchange format XML. The problem, however, it would be that the concepts might be overlapping.

The following figures depicts the respective process.

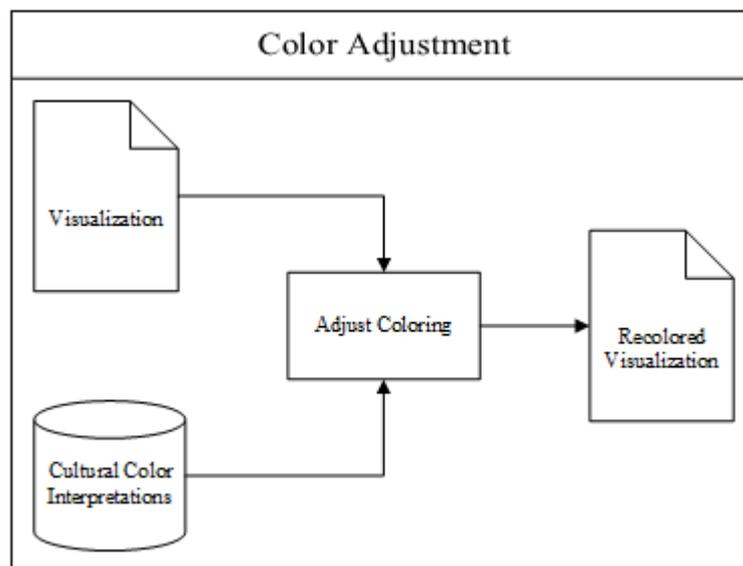


Figure 31: Color Adjustment (Own Depiction)

6.1.3.2 Relocating of Information

IT could support the situation by having the report and the cultural information location preference an input, the relocating as the process and the cultural adjusted re-located report as a result. As the importance location level, as discussed before, differs between cultures, the process, therefore, can relocate the information depending on the cultural preference and consequently generate the culture sensitive report.

The following figures depicts the respective process.

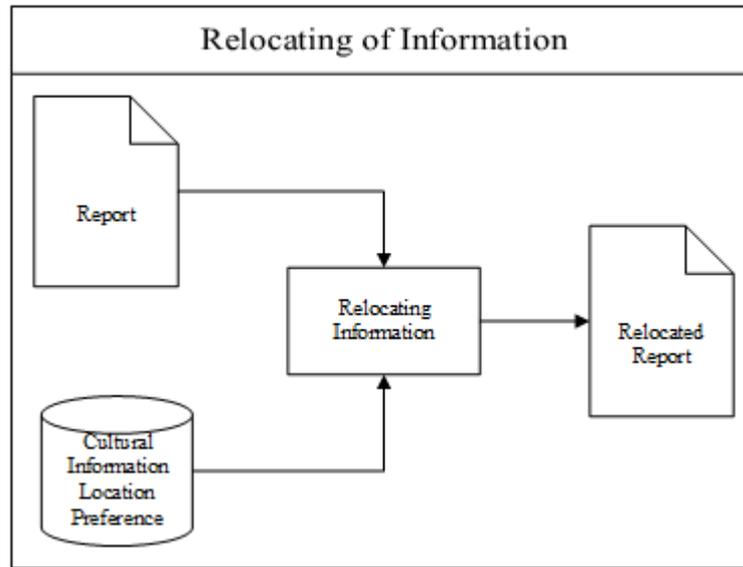


Figure 32: Relocating of Information (Own Depiction)

6.1.4 Case Three: Rejecting of Technology

When Mr. Mustermann came to the Korean organization, he quickly realized that Koreans use different software and technologies. His devices had some capability issues with the Korean devices, so after a while Mr. Mustermann tried to convince his Korean colleagues that his software and technology is 'better'. However, he quickly realized that his colleagues are not willing to use his proposals. After some time, he has a great idea and wants to propose some invention to his Korean boss, but the Korean boss is not experienced in that area and therefore directly rejects the proposal.

Case	Common Problems	Possible Support Processes
3	Preference of software Different technology acceptance Different way of dealing with innovations	Usage of software Technology acceptance Innovations

Table 57: Case 3 Description (Own Depiction)

Therefore, Mr. Mustermann needs to understand that the usage of software and the acceptance of technology can greatly differ between cultures. In addition, he needs to

understand that cultures deal with innovations differently. In the following, the possible support processes are discussed.

6.1.4.1 Usage of Software

IT could support the situation by having the cultural software usage preference as an input, an application as a support, the employee as a user and the main process that improves the acceptance of software usage. Exemplary, the process could, having the application as support, improve the acceptance by adjusting the GUI depending on the cultural background of the user.

The following figures depicts the respective process.

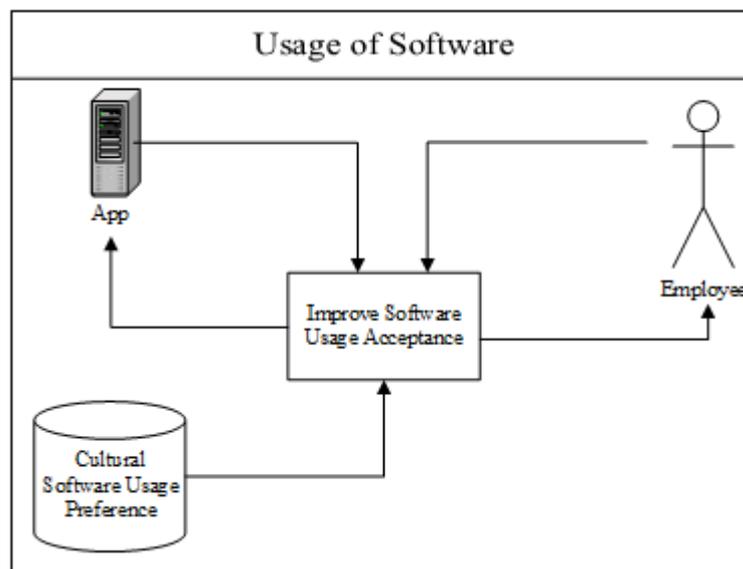


Figure 33: Usage of Software (Own Depiction)

6.1.4.2 Technology Acceptance

IT could support the situation by having the technology information and the cultural technology preference as an input, the process improving the acceptance and improved technology information as a result. This result enhances the prior information by cultural-sensitive information that could improve the acceptance and therefore reduces the rejecting of new technology.

The following figures depicts the respective process.

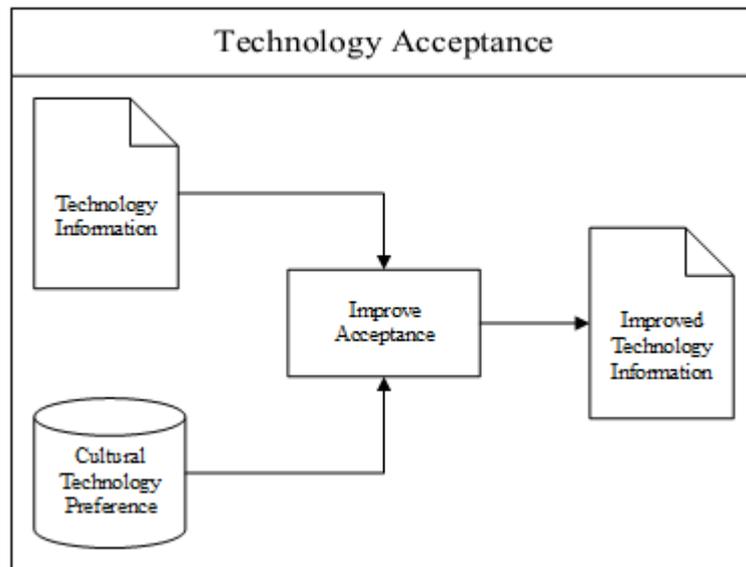


Figure 34: Technology Acceptance (Own Depiction)

6.1.4.3 Innovation

IT could support the situation by having the innovation information and the cultural innovation preference as an input, the enhancing as the process and the enhanced innovation information as an output. The process enhances the information about the cultural preferences how innovations should, for example, be proposed to the boss etc.

The following figures depicts the respective process.

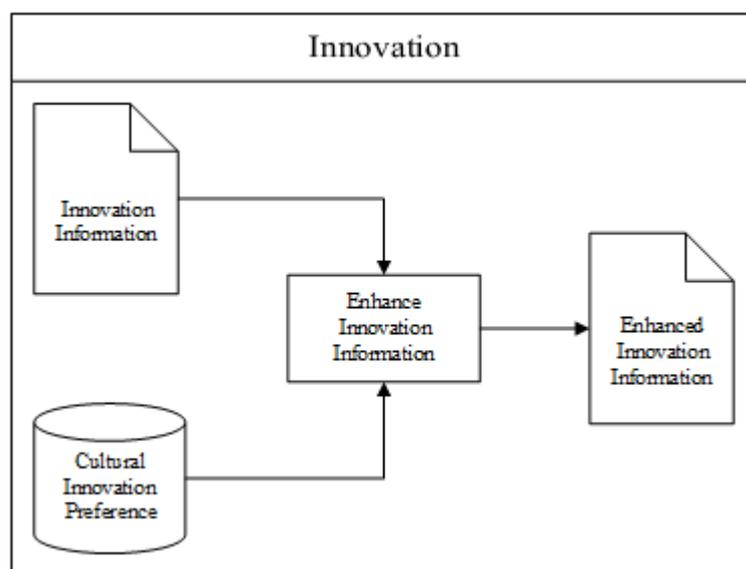


Figure 35: Innovation (Own Depiction)

6.1.5 Case Four: Intercultural Language Issues

Before Mr. Mustermann came to Korea, he tried to learn how to read Hangeul/Hanja. However, still he has problems reading it. In addition, when Mr. Mustermann has an E-Mail communication with his Korean colleagues he first gathers all data and then sends it

to his colleagues, but Koreans keep bothering that he should send even smallest parts directly. This leads to conflicts, as Mr. Mustermann feels bothered. Mr. Mustermann also realized that his Korean colleagues had a lower English level skill than he does and therefore having language misunderstandings. In addition, the level of positive and negative words is differently interpreted.

Case	Common Problems	Possible Support Processes
4	Problems in reading Hanja/Hangeul Different frequency of E-Mails Different language skills Different interpretations of positive and negative words	Transcription Frequency of E-Mails Translation enhancing Positive / Negative enhancing

Table 58: Case 4 Description (Own Depiction)

Therefore, Mr. Mustermann need support in his E-Mail communication and intercultural language issues and therefore needs to understand the differences. In the following, the possible support processes are discussed.

6.1.5.1 Transcription

IT could support this situation by having the Document and the Hanja/Hangeul Romanization as an input, the transcription as the process and the transcribed document as a result.

There are several ways to display the Korean letters into Roman letters. Up to the year 2000 the 'McCune-Reischauer' was the official one. However, in order to use it properly you needed special letters that made it more difficult again. Since 2000 the Korean Government propose the 'new' official transcription that is solely based on Roman letters.⁴⁷⁴ This can be seen in the following table. 'MCR' stands for the old McCune-Reinschauer-Romanization and 'KG' for the new Korean-Government-Romanization.

⁴⁷⁴ Cf. Kim (2014): 82–83.

	MCR	KG		MCR	KG		MCR	KG		MCR	KG
ㄱ	k	g,k	ㄷ	ch'	ch	ㅅ	ō	eo	ㅛ	yo	yo
ㅋ	k'	k	ㅈ	tch	jj	ㅜ	o	o	ㅠ	yu	yu
ㄲ	kk	kk	ㅌ	s	s	ㅜ	u	u	ㅞ	yae	yae
ㅌ	t	d,t	ㅍ	ss	ss	ㅡ	ũ	eu	ㅟ	ye	ye
ㅍ	t'	t	ㅎ	h	h	ㅣ	i	i	ㅑ	wa	wa
ㅊ	tt	tt	ㅇ	-, ng	-, ng	ㅢ	ae	ae	ㅓ	wō	wo
ㅍ	p	b	ㄴ	n	n	ㅤ	e	e	ㅕ	wi	wi
ㅑ	p'	p	ㄹ	r,n,l	r,l	ㅥ	oe	oe	ㅗ	wae	wae
ㅓ	pp	pp	ㅁ	m	m	ㅦ	ya	ya	ㅜ	we	we
ㅕ	ch	j	ㅎ	a	a	ㅧ	yō	yeo	ㅟ	üi	ui

Table 59: Differences of Romanization of Hangeul (Own Depiction)

The gray color indicates the differences in Romanization. Older texts or signs (e.g. city names) still exist and therefore use the older Romanization. This could cause misunderstandings when foreigners, who are not able to read Hangeul, try to read the Romanized word. In the following is an example Romanization of both ways.

Official Name of Capital Seoul	Hangeul	MCR	KG
Seoul Special City	서울특별시	Sōul T'ūkpyōlsi	Seoul Teukbyeolsi

Table 60: Example Romanization of McCune-Reinschauer and Korean Government (Own Depiction)

The new Korean-Government-Romanization obviously is easier to read, as no special letters are needed. The IT could firstly use Romanization (Korean-Government-Romanization) when specific terms are written in Hangeul and secondly could transcribe texts in old Romanization into the new one.

The following figures depicts the respective process.

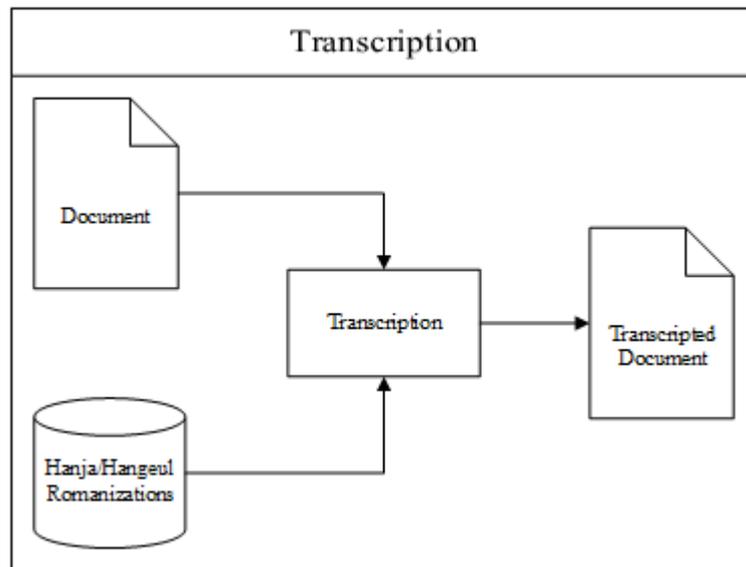


Figure 36: Transcription (Own Depiction)

6.1.5.2 Frequency of E-Mails

IT can support the situation by having the E-Mail and the cultural confirmation frequency level as an input, the gathering of the data as a process and the responses as a result. As discussed before, the process of a possible support is depicted in the following figure.

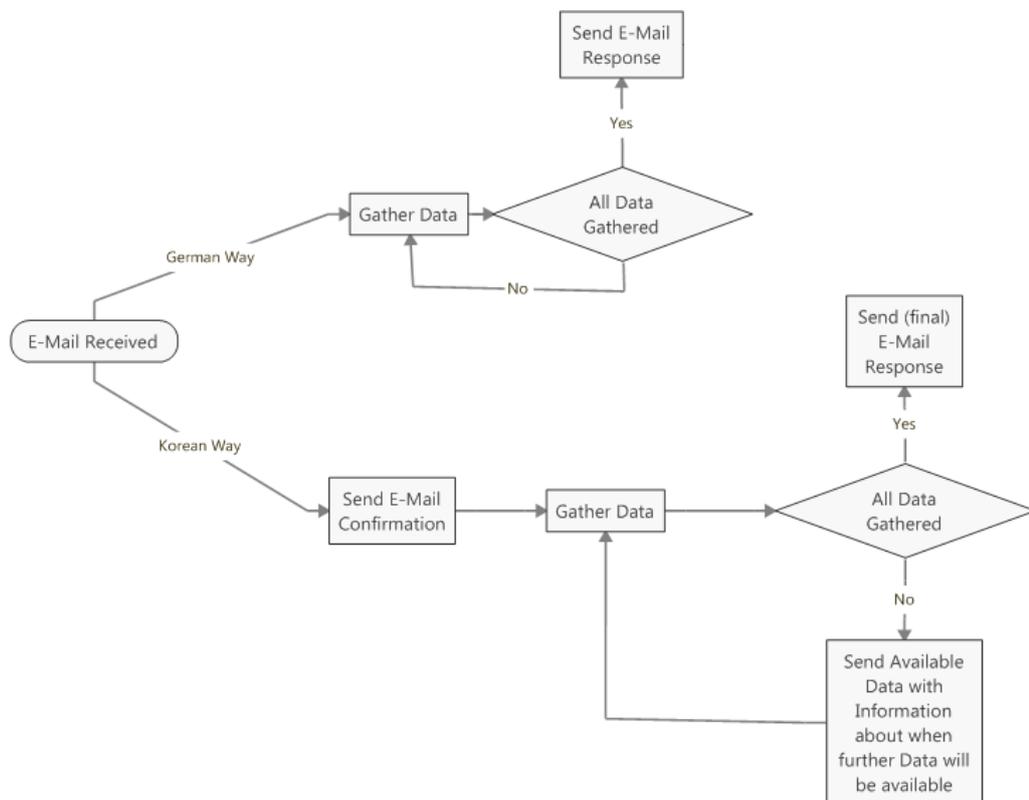


Figure 37: German and Korean Way of E-Mail Communication (Own Depiction)

As the image depicted the German and Korean way of written communication is different. The German way is said to be straightforward and subject-oriented. Whereas the Korean

way is more complex and more focused on the relationship between both concerned parties rather than solely focusing on the exchange of data.

The following figures depicts the respective process.

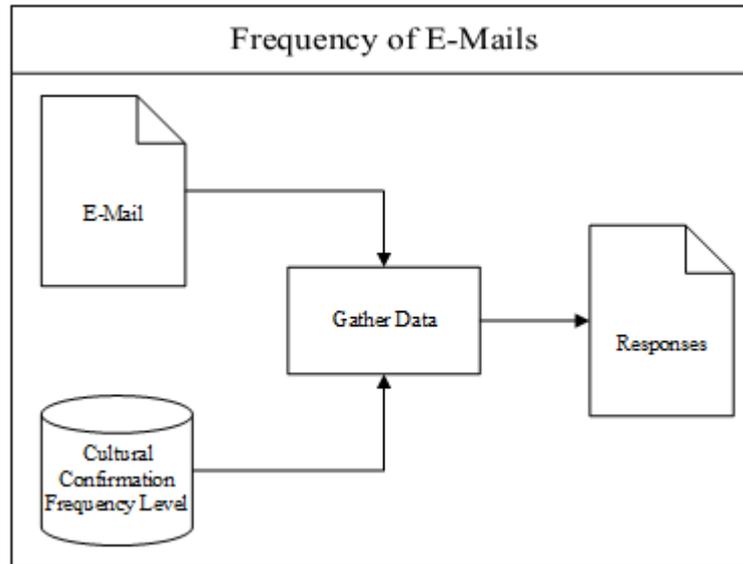


Figure 38: Frequency of E-Mails (Own Depiction)

6.1.5.3 Translation Enhancing

IT could support the situation by having the E-Mail, the employee's language level and the language translations as an input, the E-Mail language enhancing as a process and the enhanced E-Mail as an output. The process enhances the E-Mail by adding a mouse-over effect to give additional translations or remarks to words. The frequency of enhancing depends on the language level of the employee.

The following figures depicts the respective process.

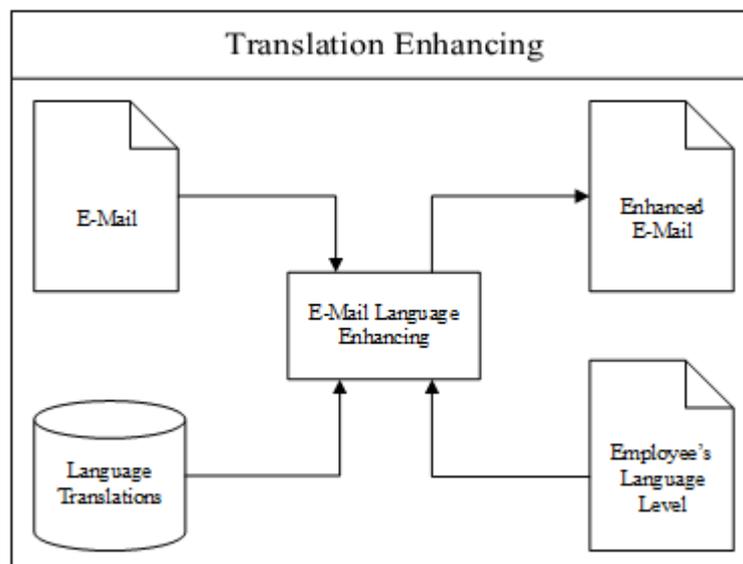


Figure 39: Translation Enhancing (Own Depiction)

6.1.5.4 Positive / Negative Enhancing

IT could support the situation by having the E-Mail and the cultural positive/negative preference as an input, the positive/negative enhancing as the process and the enhanced E-Mail as a result. The following figure shows an exemplary depiction of the usage of positive/negative meanings of Germans and Koreans. Germans tend to rather formulate over-negatively, whereas Koreans tend to rather formulate over-positively. So there could be a discrepancy in intended meanings and consequently arise in misunderstandings.

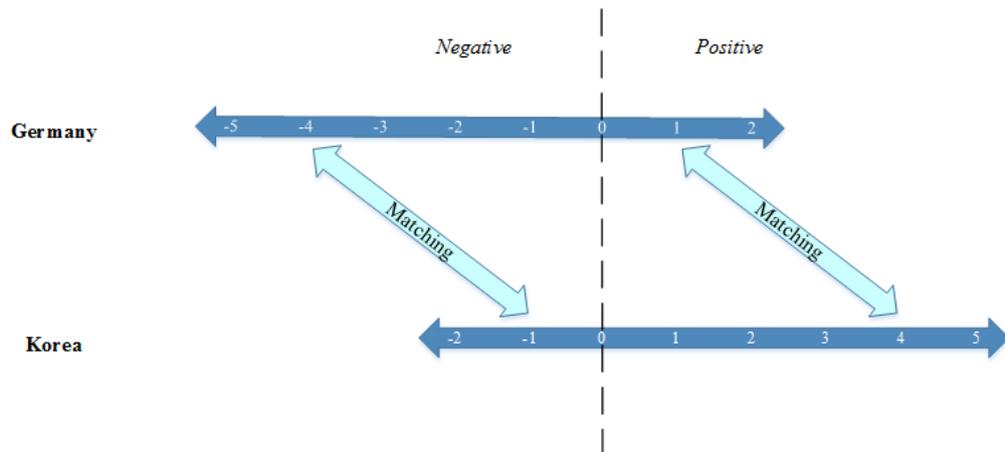


Figure 40: E-Mail Positive/Negative Enhancing (Own Depiction)

The enhancing could be realized through a mouse-over effect that would give hints about possible misinterpretations of positive/negative meanings.

The following figures depicts the respective process.

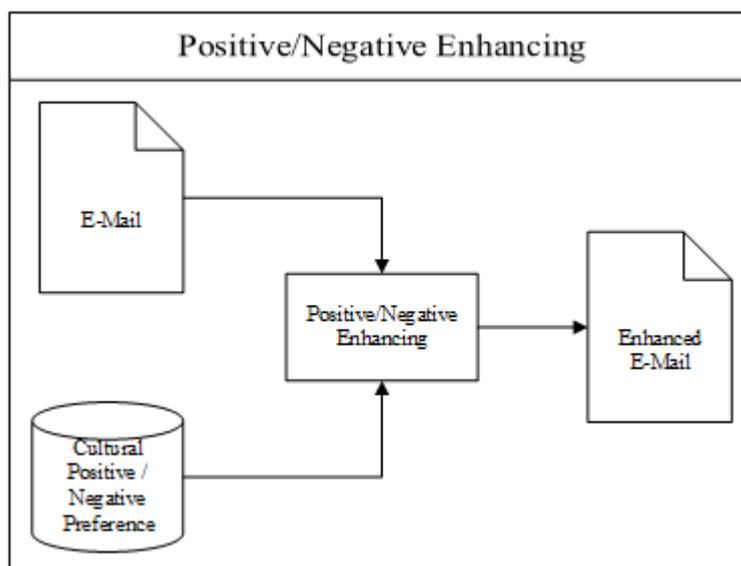


Figure 41: Positive/Negative Enhancing (Own Depiction)

6.1.6 Case Five: Formalization Disagreements

Mr. Mustermann, as being a typical German, likes a high level of formalization in a working environment. However, working in a Korean organization he quickly realizes that Korean are rather vague when working and feel uncomfortable when it is too formalized. Consequently, Mr. Mustermann had conflicts in terms of compliance, contracts and privacy as he cannot accept the vagueness in all terms and tries to foster more formalization, which his colleagues were not happy with.

Case	Common Problems	Possible Support Processes
5	Difference in importance of compliance Different degree of formalization of Contracts Difference of Privacy preference	Compliance Contracts Privacy

Table 61: Case 5 Description (Own Depiction)

Therefore, Mr. Mustermann needs to understand the differences in terms of cultural-preferred level of formalization. This is especially essential as compliance, contracts and privacy can be a very sensitive topic. In the following, the possible support processes are discussed.

6.1.6.1 Compliance

IT could support the situation by having the cultural compliance preference as an input, a server as a support, the employee as a user and the main process that monitors the compliance of the organizational activities. Depending on the cultural preference, the threshold of a warning would be different, for Germans rather sensitive and for Koreans rather loose.

The following figures depicts the respective process.

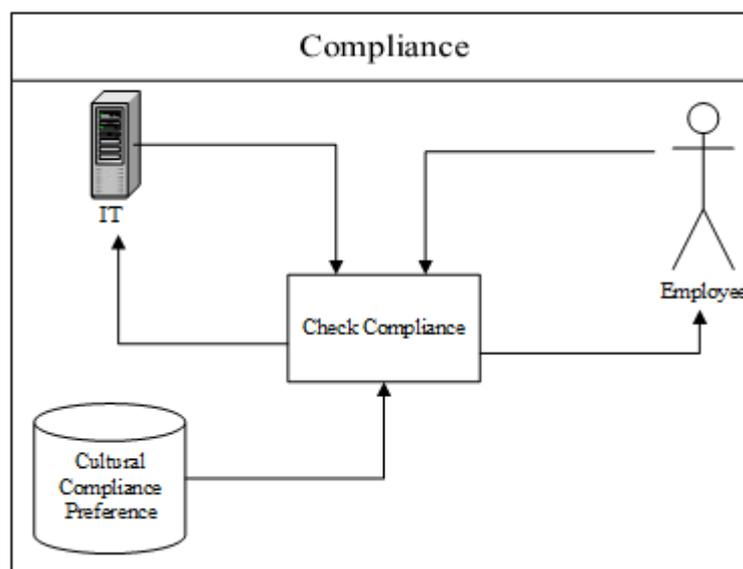


Figure 42: Compliance (Own Depiction)

6.1.6.2 Contracts

IT could support the situations by having the contract and the cultural formality preference as an input, the suggestion about the degree of formality as the process and the formality advices as a result. The process could scan the contract by certain factors (direct versus indirect speech, etc.) to give advices if the given contract complies with the cultural preferences in terms of degree of formality.

The following figures depicts the respective process.

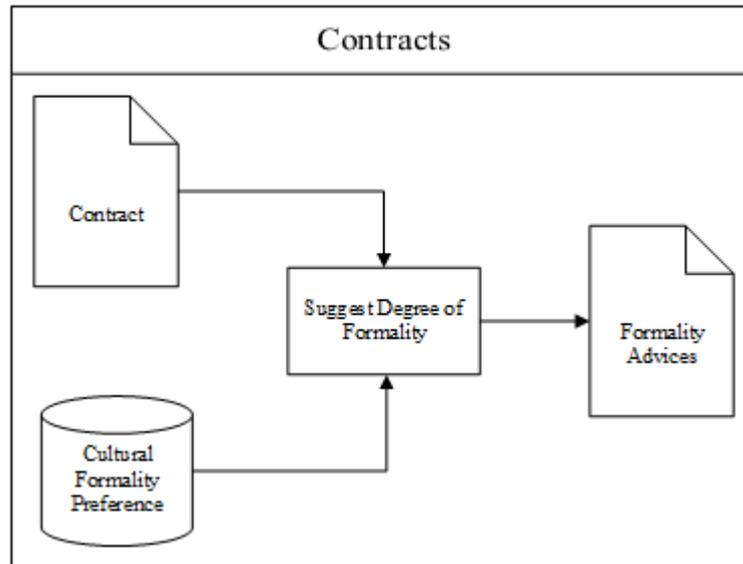


Figure 43: Contracts (Own Depiction)

6.1.6.3 Privacy

IT could support the situation by having the information and the cultural privacy preference as an input, the adjustment of the information privacy as the process and the privacy-limited information as a result. The process adjusts the information by reducing the person related information.

The following figures depicts the respective process.

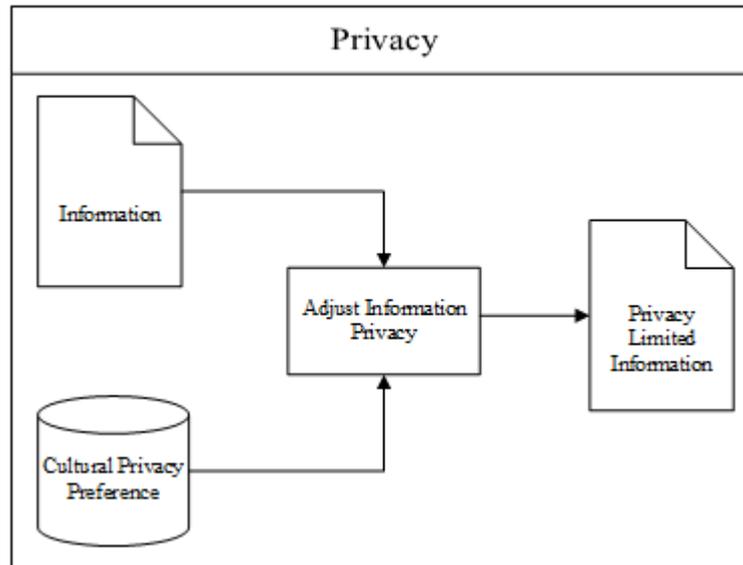


Figure 44: Privacy (Own Depiction)

6.1.7 Case Six: Preconception Bias

Mr. Mustermann, as everyone, had a stereotype of Koreans before going to Korea. He thought stereotypes are there for a reason and did not pay any big attention to study about the Korean culture beforehand. Obviously, the preconception (stereotypes, fashion, etc.) was different to the actual situation when he came to Korea. This lead to minor misunderstandings, but also to severe conflicts.

Case	Common Problems	Possible Support Processes
6	Having incorrect stereotypes Different fashion and appearance	Preconception support / Gamification Fashion and appearance

Table 62: Case 6 Description (Own Depiction)

Therefore, Mr. Mustermann should have paid more attention to study about other cultures. In the following, the possible support processes are discussed.

6.1.7.1 Preconception Support / Gamification

IT could support this situation by having cultural multimedia data and the cultural preconception preference as an input, the multimedia system as a process and the preconception support as a result. The process takes multimedia data (Videos, Text like Do's and Don'ts, etc.) and the preference (visual, audial, etc.) learning type and processes it into a learning package that supports preconception.

The following figures depicts the respective process.

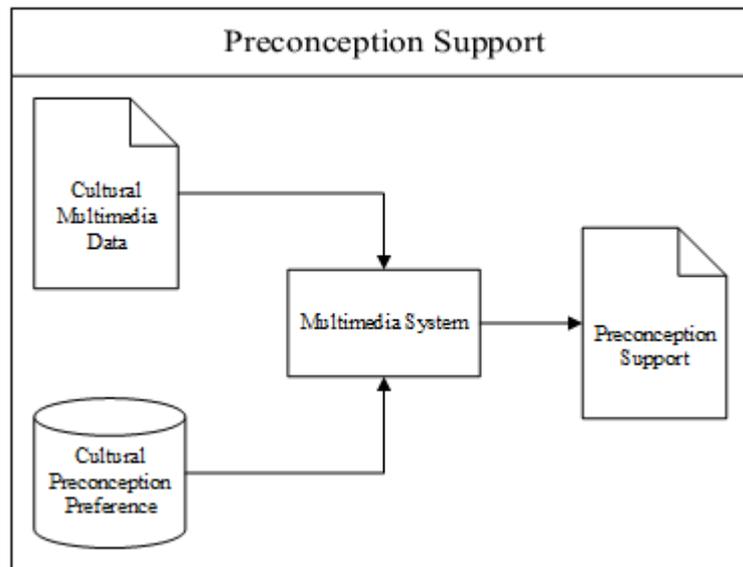


Figure 45: Preconception Support (Own Depiction)

The knowledge about the cultural background of their employees is essential to have for today's managers.⁴⁷⁵ An etiquette guide cannot be suitable for all situations. It just tries to give an understanding of the culture and the stereotypical behavior.⁴⁷⁶

The multimedia system is more or less just a passive system that has information as an output. As IT offers a more interactive approach, another way IT could support this situation is by having culture specific behavior as an input, the cultural gamification as a process, an application as a support and the employee as a user. This process deals with the concept of gamification. This is about delivering information in a more fun and interactive way than a simple multimedia system. This means the user 'plays' in order to learn about cultures.

The following figures depicts the respective process.

⁴⁷⁵ Cf. Bolchover (2012): 11.

⁴⁷⁶ Cf. Kim (2014): 4.

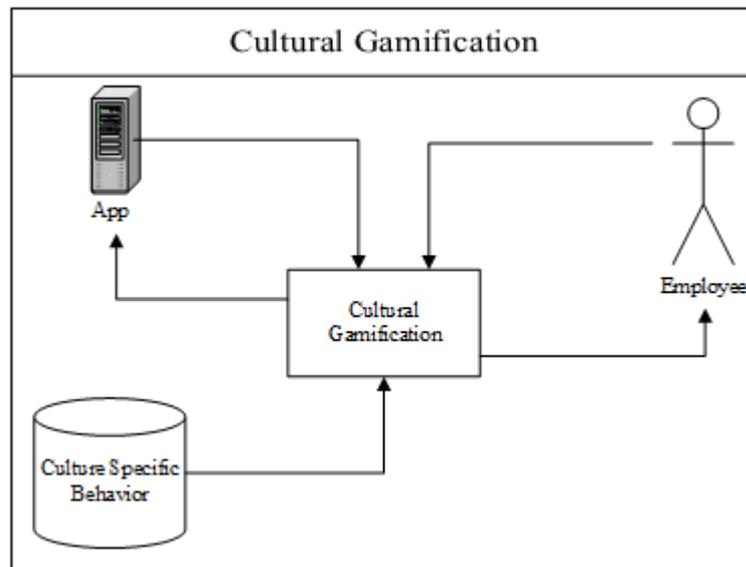


Figure 46: Cultural Gamification (Own Depiction)

6.1.7.2 Fashion and Appearance

IT could support this situation by having the current trends and the common culture specific fashion as an input, the process of suggestion an appropriate fashion and appearance and the suggestion as a result. The result therefore gives advices of appropriate culture sensitive fashion (colors, style, etc.) to decrease misunderstandings and conflicts.

The following figures depicts the respective process.

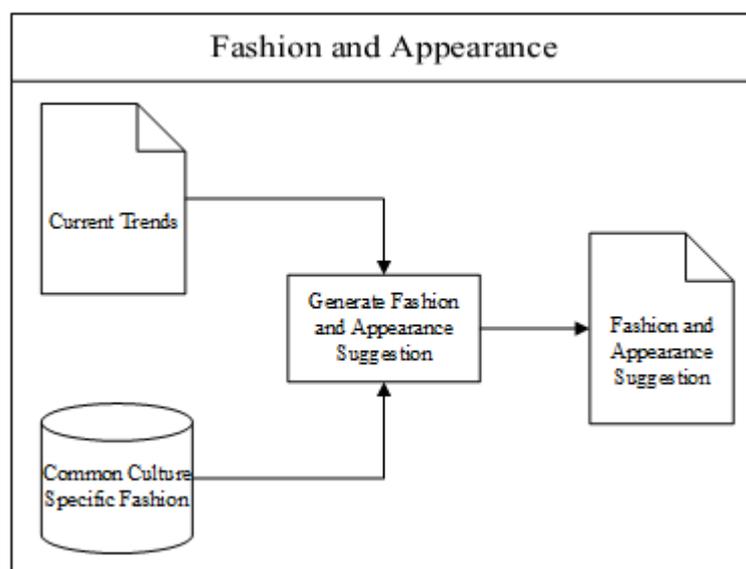


Figure 47: Fashion and Appearance (Own Depiction)

6.1.8 Case Seven: Attitude Towards Work

When Mr. Mustermann talked to his Korean colleagues, he noticed that they have a different attitude towards work. Koreans have a worse work life balance, as they do not separate between work and normal life. Also, Koreans do not define themselves through

individual performance. Work pressure seems high to Mr. Mustermann in Korea. The concept of time also differs when Koreans talked about their work. Lastly, the mindset towards work, e.g. attitude towards women, differs between Germany and Korea.

Case	Common Problems	Possible Support Processes
7	Difference in work life balance Different understanding of fair rewarding Different level of work pressure Different concept of time Different mindset	Work life balance Rewarding Work pressure Concept of time Mindset

Table 63: Case 7 Description (Own Depiction)

As the attitude towards work is very important for the work performance and consequently for the success of the organization. Therefore, Mr. Mustermann should understand the cultural differences of the attitude towards work.

In the following, the possible support processes are discussed.

6.1.8.1 Work Life Balance

IT could support the situation by having the cultural work life balance preference as an input, the IT as a support, the employee as the user, the support of work life balance as the process and the needed data as a result. The process helps the employees to generate the automatically without bothering their private life when being absent from work. For example, the boss can ask the IT system to generate him a report instead of calling his employee doing it from home.

The following figures depicts the respective process.

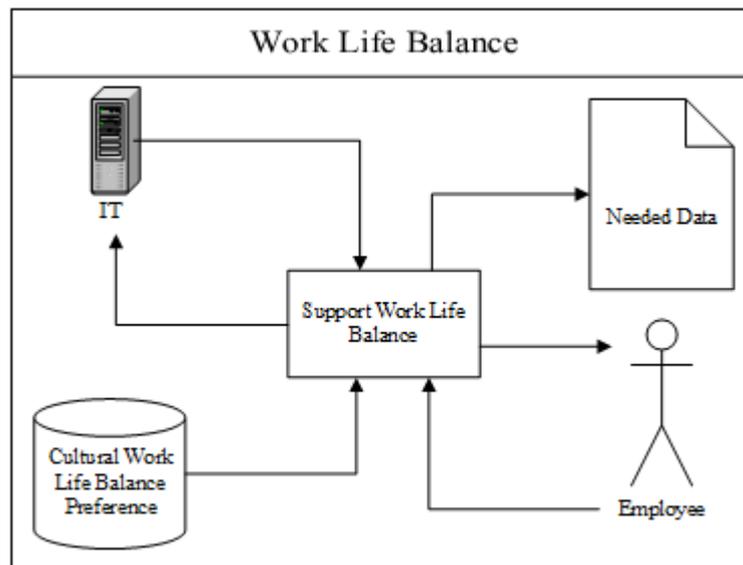


Figure 48: Work-Life Balance (Own Depiction)

6.1.8.2 Rewarding

IT could support the situation by having the employee specifics (e.g. performances, seniority, etc.) and the cultural reward preference as an input, the rewarding as the process and the culture specific rewarding as a result. The process calculated a culture suitable rewarding.

The following figures depicts the respective process.

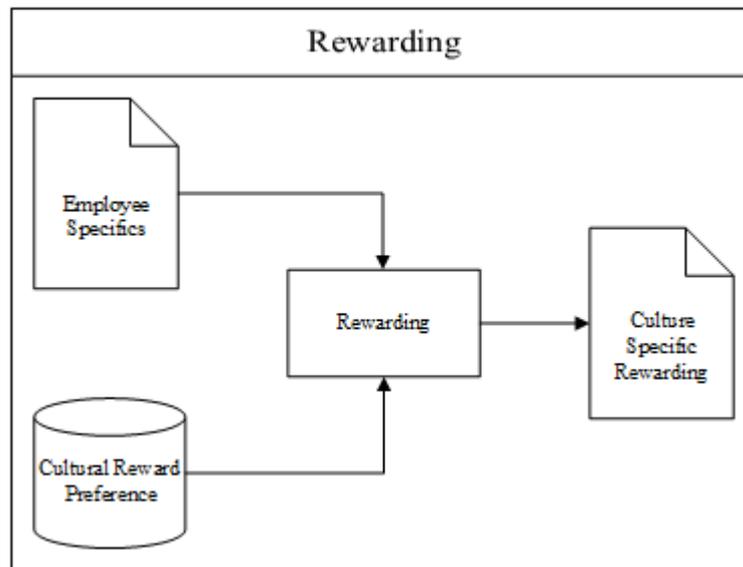


Figure 49: Rewarding (Own Depiction)

6.1.8.3 Work Pressure

IT could support the situation by having the cultural work pressure preference as an input, the IT as a support, the employee as a user and the support work pressure as the process. The process should support the employee by taking over work as much as possible in order to decrease the work pressure of the employees.

The following figures depicts the respective process.

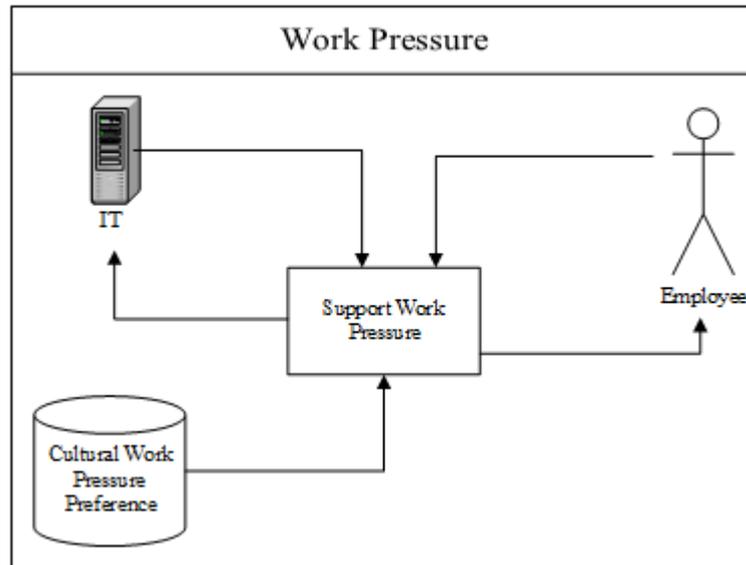


Figure 50: Work Pressure (Own Depiction)

6.1.8.4 Concept of Time

IT could support the situation by having the situation and the cultural concept of time preference as an input, the suggest concept of time as the process and the concept of time suggestion as a result. The process suggests the cultural suitable concept of time with respect to the current situation.

The following figures depicts the respective process.

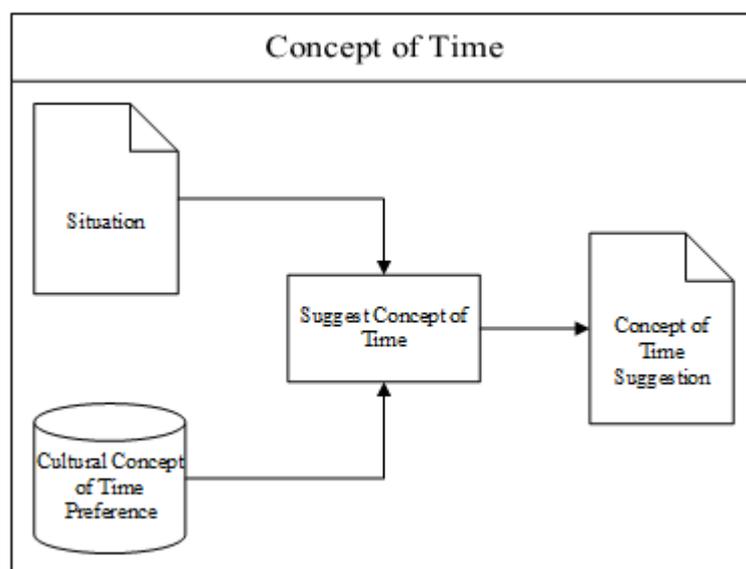


Figure 51: Concept of Time (Own Depiction)

6.1.8.5 Mindset

IT could support the situation by having the situation, the mindset problem and the cultural mindset preference as an input, the suggest mindset improvements as the process and the mindset improvement suggestions as a result. The process suggest mindset improvements,

this means that for example, an employee is not used to contribute to common goals (individualistic cultures), so the process could change his mindset and consequently improve the team performance.

The following figures depicts the respective process.

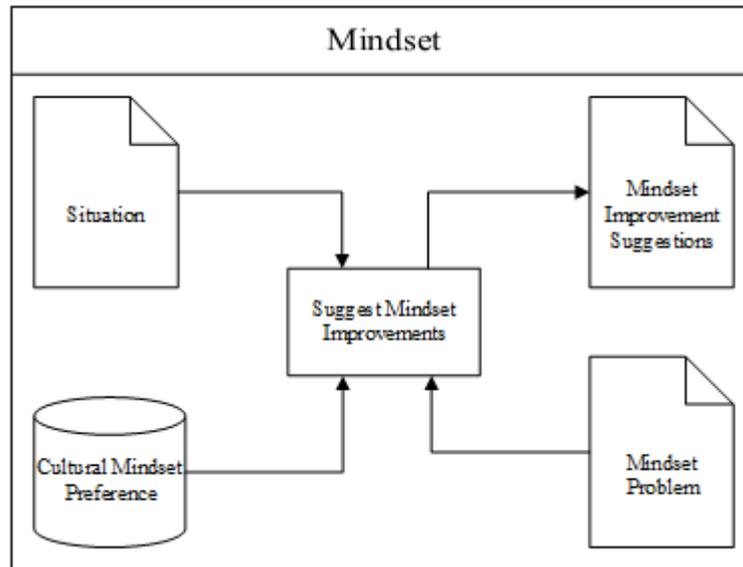


Figure 52: Mindset (Own Depiction)

6.1.9 Case Eight: Group Related Problems

Mr. Mustermann, as being a German, prefers direct and fact based communication. When he needed to get some feedback from his Korean boss. At the feedback E-Mail, the Korean boss talks around the bush and avoids direct statements, which Mr. Mustermann is not good at dealing with. As an answer, Mr. Mustermann replies with the request of a direct feedback and directly tells his boss what he can do better at his job. This results in a discussion and a conflict between him and his boss, as it was too direct. Mr. Mustermann noticed conflicts are solved differently between the own culture and different cultures. Also, it took Mr. Mustermann a lot of time to earn trust in Korea. At a decision that had to be made the Korean manager decided towards his team even though the numbers suggested a different way. That shows that there is a big reliance and followness and results in a different leadership style Mr. Mustermann is used to.

Case	Common Problems	Possible Support Processes
8	Different styles of feedback Different levels of directness Different style of discussions Different level of directness of problem resolution Different resolution of problems between own culture and different culture Different trust building between own culture and different culture Power of majority of people against hard numbers Different style of reliance and followness Different leadership styles	Feedback Directness adjustment Discussions Resolution directness Resolution own culture versus different culture Trust own culture versus different culture Numbers versus people Reliance and followness Cultural dashboard

Table 64: Case 8 Description (Own Depiction)

Therefore, Mr. Mustermann should pay closer attention to his communication style. Feedback and discussions, especially in terms of directness, are done in different ways among cultures. In case of a conflict, they are resolved in different styles. There is a difference in giving trust between own and other cultures. Mr. Mustermann is very fact and therefore number focused and therefore had problems in accepting the decision that did not follow the hard numbers. He is individualistic and therefore expects a more individual responsibility from his Korean colleagues. Finally, his Korean boss has little knowledge about Germans and therefore results in a non-culture-sensitive leadership style. In the following, the possible support processes are discussed.

6.1.9.1 Feedback

IT could support the situation by having the cultural feedback preference as an input, the feedback adjustment as the process and the employee as the user. The process should advice the style of giving feedback to avoid misunderstanding and that the other person loses his face.

The following figures depicts the respective process.

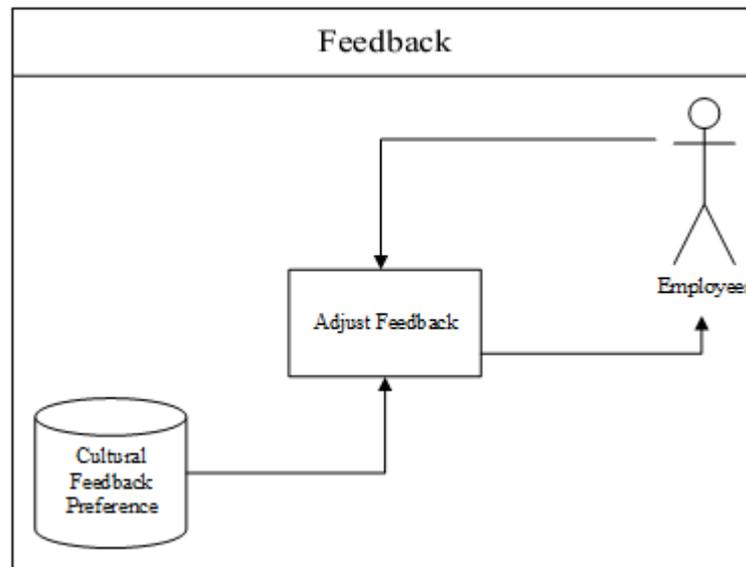


Figure 53: Feedback (Own Depiction)

6.1.9.2 Directness Adjustment

IT could support the situation by having an E-Mail and the cultural directness level as an input, the directness level enhancing as a process and the enhanced E-Mail as the result. The process scans the E-Mail with respect to the directness (direct versus indirect speech, etc.) and gives advices to rephrase the E-Mail to a cultural appropriate level of directness.

The following figures depicts the respective process.

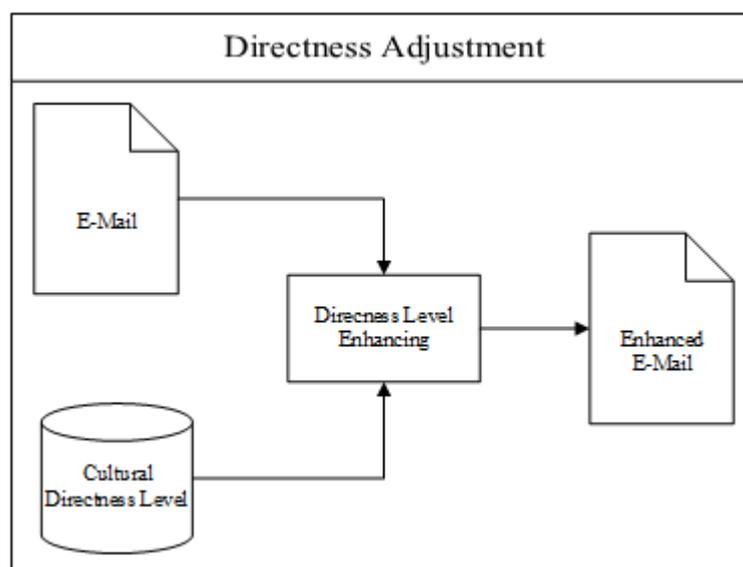


Figure 54: Directness Adjustment (Own Depiction)

6.1.9.3 Discussions

IT could support the situation by having the cultural discussion preference as an input, the discussion support as a process and the employee as a user. The process should mentor the discussion to lead it in a culture appropriate way.

The following figures depicts the respective process.

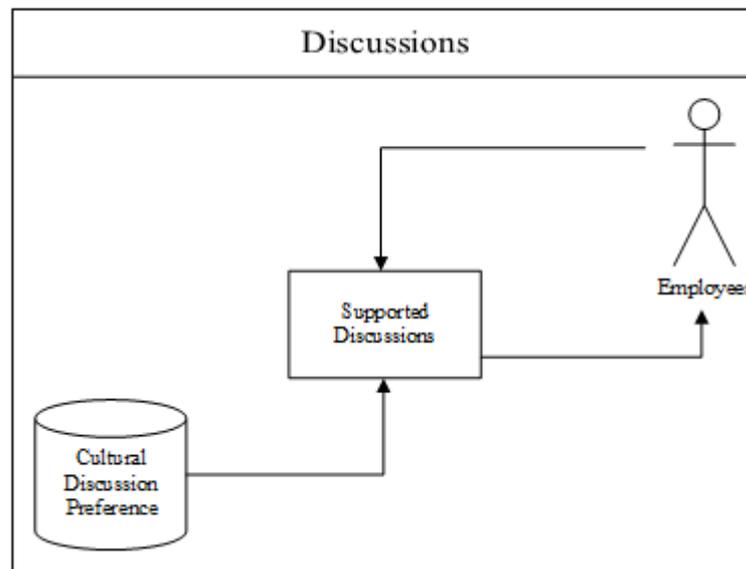


Figure 55: Discussions (Own Depiction)

6.1.9.4 Resolution Directness

IT could support the situation by having the situation description, the culture of the involved parties and the cultural resolution directness preference as an input, the resolution directness proposal as the process and the resolution directness suggestion as a result. The process considers the situation the cultural preferences and the culture of the involved parties and calculates a suitable level of directness to resolve the conflict under the conditions.

The following figures depicts the respective process.

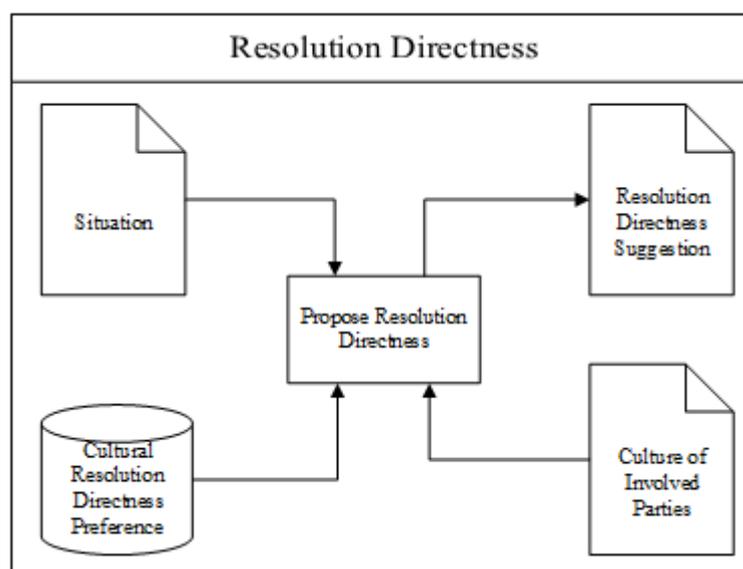


Figure 56: Resolution Directness (Own Depiction)

6.1.9.5 Resolution Own Culture versus Different Culture

IT could support the situation by having the situation description, the culture of the involved parties and the cultural resolution preference as an input, the resolution proposal as the process and the resolution suggestion as a result. The process considers the situation the cultural preferences and the culture of the involved parties and calculates a good way to resolve the conflict under the condition focusing on different cultures.

The following figures depicts the respective process.

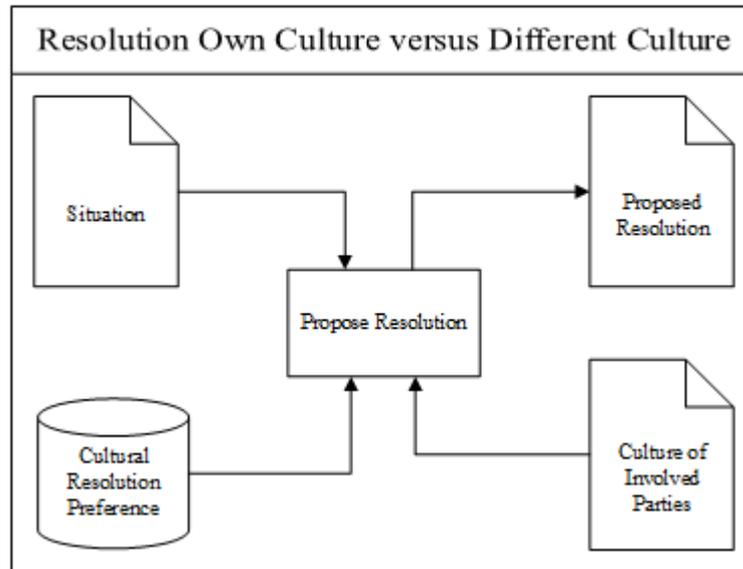


Figure 57: Resolution Own Culture versus Different Culture (Own Depiction)

6.1.9.6 Trust Own Culture versus Different Culture

IT could support the situation by having the situation description, the culture of the involved parties and the cultural trust preference as an input, the trust building proposal as the process and the trust building suggestion as a result. The process considers the situation the cultural preferences and the culture of the involved parties and calculates a good way to build trust under the condition focusing on different cultures.

The following figures depicts the respective process.

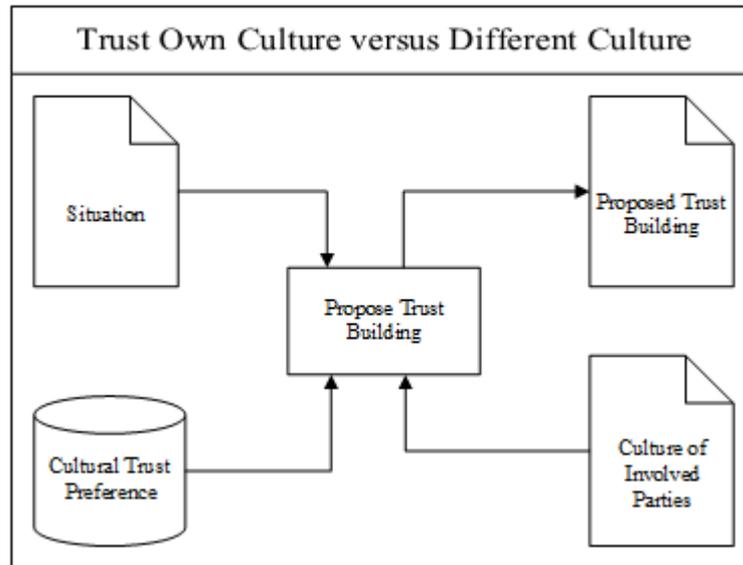


Figure 58: Trust Own Culture versus Different Culture (Own Depiction)

6.1.9.7 Numbers versus People

IT could support the situation by having the employees' decision, the cultural preference of numbers versus people and the information as an input, the decision number versus people support as the process and the decision proposal as a result. The process matches the information (hard numbers) the employees' decision and the preference of the culture in terms of numbers versus people and then proposes which way to go, numbers or people.

The following figures depicts the respective process.

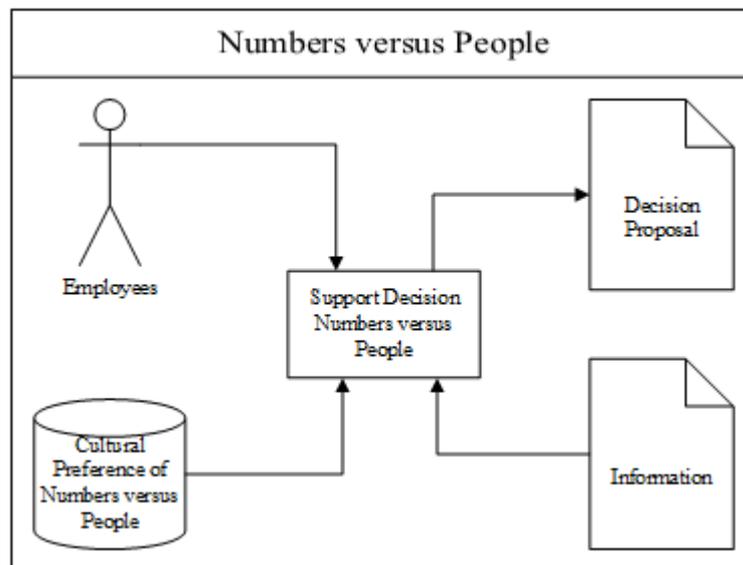


Figure 59: Numbers versus People (Own Depiction)

6.1.9.8 Reliance and Followness

IT could support the situation by having the cultural reliance and followness preference as an input, the reliance and followness support as the process and the manager and the

employee as a support. The process manages the interaction between the manager and the employee in a culture-sensitive appropriate way in terms of reliance and followness.

The following figures depicts the respective process.

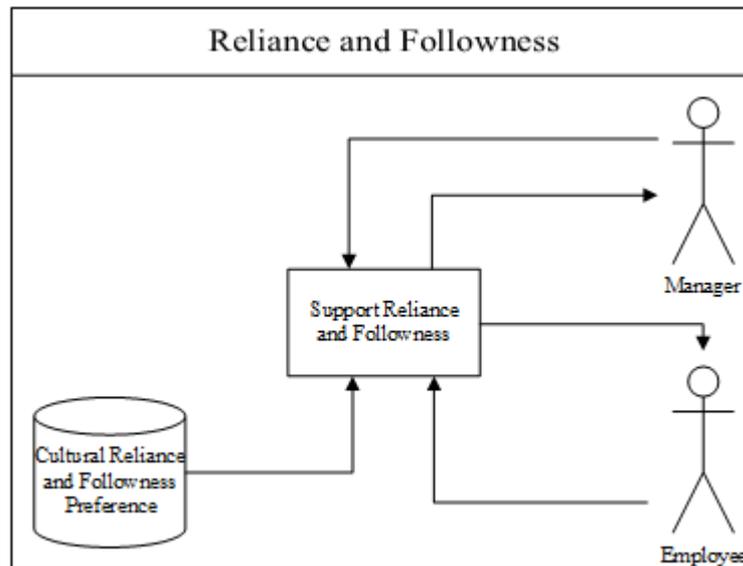


Figure 60: Reliance and Followness (Own Depiction)

6.1.9.9 Cultural Dashboard

In order to have a successful intercultural relationship, it is essential to study the other culture, understand it and adjust your own behavior.⁴⁷⁷ Today's employees do not usually have enough time to study other cultures deeply.⁴⁷⁸ It is always challenging for when diverse cultures get together, especially when they have little information about each other. Misunderstandings are just a matter of time. An etiquette guide condensed to a single piece of paper would be best; however, cultural behavior is excessively complex to break it down into a few bullet points.⁴⁷⁹ The very first understanding should be about local conditions and local culture.⁴⁸⁰ Customs and local laws can significantly differ to one's own country. Therefore, it is necessary to understand them to avoid severe situations.⁴⁸¹ Once there is an intercultural misunderstanding, it takes more time to resolve that issue than studying and avoiding it beforehand.⁴⁸²

IT could support this situation by having cultural models as an input, the cultural dashboard as a process, an application as a support and the employee as a user. The dashboard

⁴⁷⁷ Cf. Kim (2014): 99.

⁴⁷⁸ Cf. Kim (2014): 99.

⁴⁷⁹ Cf. Kim (2014): 3.

⁴⁸⁰ Cf. Sanchez-Runde/Nardon/Steers (2011): 212.

⁴⁸¹ Cf. Liu/Volčić/Gallois (2011): 22.

⁴⁸² Cf. Kim (2014): 99.

enhances the information delivery by better visualizations to foster a better understanding of cultures and therefore having a better leadership style.

The following table and diagram depict the same information about an exemplary international team (Hofstede's Dimensional Model). However, both do have limited usefulness when the team has many diverse members. Therefore, a dashboard is one way to make the information delivery less time consuming and more effective in understanding.

Country	PDI	IDV	MAS	UAI	LTO	IND
Germany	35	67	66	65	83	40
Korea	60	18	39	85	100	29
Japan	54	46	95	92	88	42
USA	40	91	62	46	26	68
Venezuela	81	12	73	76	16	100
Switzerland	34	68	70	58	74	66
Germany	35	67	66	65	83	40
Italy	50	76	70	75	61	30
...

Table 65: Exemplary Visualization - Table (Own Depiction)

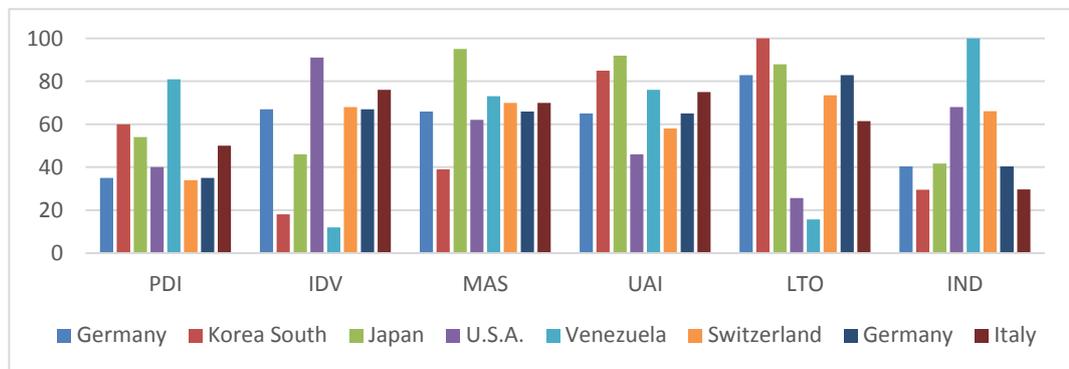


Figure 61: Exemplary Visualization - Diagram (Own Depiction)

If a manager of an international team wants to get an estimate about the cultures within his team, the previous table and figure seem sufficient. However, if the manager wants to get a more detailed idea about his team and wants to deepen his knowledge about the culture specific behavior a more sophisticated visualization is needed. Consequently, the question arises how such a visualization could look like. In the context of this thesis, an intercultural dashboard is proposed.

The dashboard is based on an already-tested model (Hofstede). It can be easily enhanced, as it is not too specific. The level of detail is not too high.

In the following the description of each area of the dashboard is given:

- a) The manager can decide how many team members he has and how many most/least similar cultures (to his own culture) he wants to see.
- b) In this area, the manager selects his own culture and the culture of his team members. In this example, the manager and one team member share the same national culture (German).
- c) The table shows the respective scores of each dimension for each culture.
- d) In context of this thesis, an index that support the manager to see how similar cultures are has been developed. It is named the 'Intercultural Similarity Index' (ICS-Index). It is calculated with the scores of the six dimensions. It can range from 0.48 (lowest similarity among set of cultures) to 1.00 (same culture).
- e) A quantile calculation on each dimension gives the manager an impression how his team would behave. An additional quantile calculation gives an overall tendency (ICS-Index). Here, the team is in the center of PDI; wide spread on IDV; has the tendency to masculine on MAS; similar high value UAI, but little more spread; rather spread on LTO and on IVR it is little spread in center. The ICS-Index is rather high, so the overall team appears to be rather similar. With these calculations, the manager can easily predict and understand the culture specific behavior and behave appropriately.
- f) In the heterogeneity section, the maximal difference within the team in each dimension is shown. In addition, the median of all differences in scores is calculated and shown in the below bar. Here, the median is ~63. We propose that a heterogeneity below 20 is 'too' similar and therefore not beneficial. A score difference between 20 and 60 is beneficial as it broadens the way of thinking. Above 60 we propose the team becomes 'too' different and decreases the productivity.
- g) The homogeneity section shows the median of each dimension and the median over all dimensions. The second row shows the difference from the team median scores to the scores of the manager in each dimension.
- h) This area gives the scores of the answers to an intercultural questionnaire of the manager's perception to himself and the perception to his team. A high score (big difference) could be due to a strong individual or organizational culture or a long stay abroad. Future research should look into that.

In the following figures, the questionnaire is shown for each dimension. It is derived from sample sentences from Hofstede’s research⁴⁸³ and put them into a, in terms of this thesis, developed structure. LTO and IND/IVR are missing, as Hofstede has not given any sample behavior sentences to these dimensions yet. The blue column is the perception of the manager to himself and the green is the perception to his team. The scoring was chosen randomly. The scores are calculated into a 0 to 100 format and put into the dashboard.

PDI

Small	0	1	2	3	4	5	High
Hierarchy in organizations means an inequality of roles, established for convenience.	x					x	Hierarchy in organizations reflects existential inequality between higher and lower levels.
Decentralization is popular.			x		x		Centralization is popular.
There are fewer supervisory personnel.		x					There are more supervisory personnel.
There is a narrow salary range between the top and bottom of the organization.			x				There is a wide salary range between the top and bottom of the organization.
Managers rely on their own experience and on subordinates.				x		x	Managers rely on superiors and on format rules.
Subordinates expect to be consulted.			x	x			Subordinates expect to be told what to do.
The ideal boss is a resourceful democrat.		x			x		The ideal boss is a benevolent autocrat, or good father.
Subordinate-superior relations are pragmatic.			x			x	Subordinate-superior relations are emotional.
Privileges and status symbols are frowned upon.	x			x			Privileges and status symbols are normal and popular.
Manual work has the same status as office work.		x			x		White-collar jobs are valued more than blue-collar jobs.

Figure 62: PDI Questionnaire (Own Depiction)

IDV

Collectivist	0	1	2	3	4	5	Individualist
Students only speak up in class when sanctioned by the group.					x	x	Students are expected to individually speak up in class.
The purpose of education is learning how to do.	x				x		The purpose of education is learning how to learn.
Diplomas provide entry to higher-status groups.			x		x		Diplomas increase economic worth and/or self-respect.
Occupational mobility is lower.		x					Occupational mobility is higher.
Employees are members of in-groups who will pursue their in-group's interest.			x			x	Employees are "economic men" who will pursue the employer's interest if it coincides with their self-interest.
Hiring and promotion decisions take an employee's in-group into account.				x		x	Hiring and promotion decisions are supposed to be based on skills and rules only.
The employer-employee relationship is basically moral, like a family link.			x	x			The employer-employee relationship is a contract between parties on a labor market.
Management is management of groups.		x			x		Management is management of individuals.
Direct appraisal of subordinates spoils harmony.			x			x	Management training teaches the honest sharing of feelings.
In-group customers get better treatment (particularism).				x		x	Every customer should get same treatment (universalism).
Relationship prevails over tasks.		x			x		Task prevails over relationship.

Figure 63: IDV Questionnaire (Own Depiction)

MAS

Feminine	0	1	2	3	4	5	Masculine
Management as ménage: intuition and consensus.			x		x		Management as ménage: decisive and aggressive.
Resolution of conflicts by compromise and negotiation.			x		x		Resolution of conflicts by letting the strongest win.
Rewards are based on equality.		x					Rewards are based on equity.
Preference for smaller organizations.	x		x				Preference for larger organizations.
People work in order to live.				x		x	People live in order to work.
More leisure time is preferred over more money.			x	x			More money is preferred over more leisure time.
Careers are optional for both genders.		x			x		Careers are compulsory for men, optional for women.
There is a higher share of working women in professional jobs.			x			x	There is a lower share of working women in professional jobs.
Humanization of work by contact and cooperation.				x		x	Humanization of work by job content enrichment.
Competitive agriculture and service industries.		x			x		Competitive manufacturing and bulk chemistry.

Figure 64: MAS Questionnaire (Own Depiction)

⁴⁸³ Cf. Hofstede/Hofstede/Minkov (2010)

UAI

Weak Uncertainty Avoidance	0	1	2	3	4	5	Strong Uncertainty Avoidance
More changes of employer, shorter service.					x	x	Fewer changes of employer, longer service.
There should be no more rules than strictly necessary.			x		x		There is an emotional need for rules, even if these will not work.
Hard-working only when needed.		x					There is an emotional need to be busy and an inner urge to work hard.
Time is a framework for orientation.		x			x		Time is money.
There is tolerance for ambiguity and chaos.		x			x		There is a need for precision and formalization.
Belief in generalists and common sense.		x			x		Belief in experts and technical solutions.
Top managers are concerned with strategy.			x				Top managers are concerned with daily operations.
More new trademarks.				x		x	Fewer new trademarks.
Focus on decision process.			x	x			Focus on decision content.
Intrapreneurs are relatively free from rules.		x	x				Intrapreneurs are constrained by existing rules.
there are fewer self-employed people.			x	x			There are more self-employed people.
Better at invention, worse at implementation.	x				x		Worse at invention, better at implementation.
Motivation by achievement and esteem or belonging.		x			x		Motivation by security and esteem or belonging.

Figure 65: UAI Questionnaire (Own Depiction)

- i) The area shows the ICS-Index-Matrix. It depicts the matrix of each respective similarity between the team members.
- j) The two last sections show the most similar and least similar cultures to the manager.

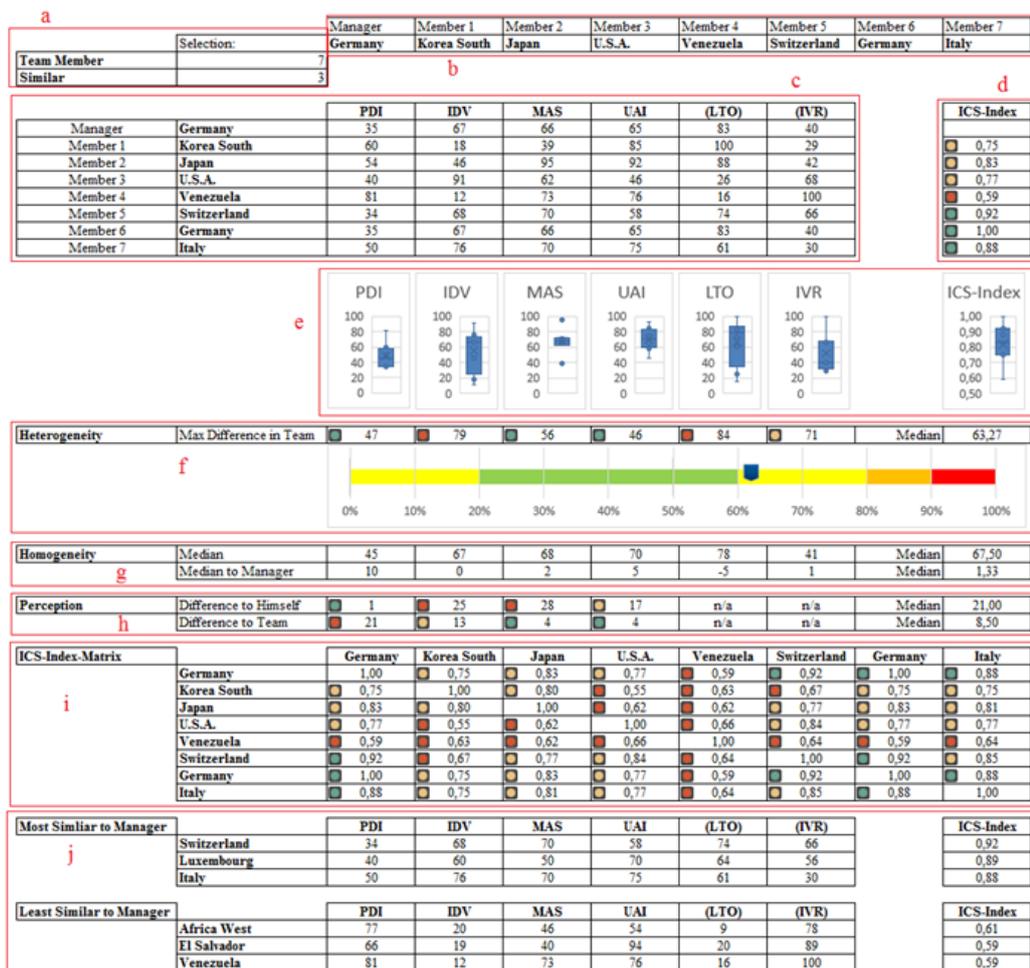


Figure 66: Intercultural Dashboard (Own Depiction)

The intercultural dashboard can be useful for managers, who are responsible for an international team, but lack in intercultural competences. This is especially important as intercultural competence become more and more essential in today's globalized working environment. This proposed intercultural dashboard could have been a useful tool for the pilot and the airline of the initial example in order to avoid the crash of the airplane. They could have checked the national cultural behavior of the crew prior and could have seen that they have problems dealing with power distance.

However, a dashboard itself can only support and cannot take over the manager's work itself. The developed dashboard in this thesis are a proposal how it could be shaped. Important to mention is that the scores of Hofstede's Dimension Model should be seen with caution. This is a general problem with dashboards that the visualized scores could be taken too granted and let the manager neglect other factors that influence the situation that are not included in the dashboard. As mentioned, the database and the dashboard are proposals and therefore only include one cultural model. Managers will, at some point, encounter the limitations of Hofstede's dimension model and as a consequence the limitation of this dashboard. As Hofstede's dimension model only covers a limited area of the concept of culture, one proposal for future research is to add further cultural models and therefore to enhance the dashboard by having a better coverage of the concept of culture. The question, however, is how many cultural models have the 'best' fit for the dashboard. Obviously, the higher the number of included models the higher the degree of complexity. In addition, by adding more models the overlapping areas of the concept of culture increase more and more. So one questions of this paper arises how many models should be included for having the 'best' support for a manager.

The following figures depicts the respective process.

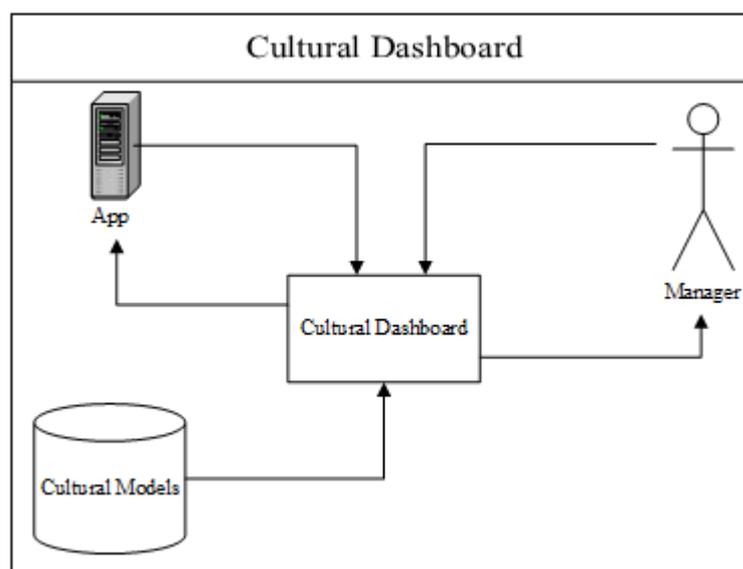


Figure 67: Cultural Dashboard (Own Depiction)

6.1.10 Case Nine: Importance of Personal Network

When Mr. Mustermann arrived in Korea, he had no personal network. He realized that a sophisticated network is essential in Korea. Korean use primarily their network in order to solve problems and consider their network when deciding.

Case	Common Problems	Possible Support Processes
9	Importance of network Difference in problem methodology Different separation of business environment	Network Methodology Separation of business environment

Table 66: Case 9 Description (Own Depiction)

Therefore, Mr. Mustermann needs to understand the essentiality of a sophisticated network and resulting into a different methodology to solve problems. In addition, it is mandatory to consider the differences in separating of business environments. In the following, the possible support processes are discussed.

6.1.10.1 Network

IT could support the situation by having the cultural network preference as an input, the network generating as the process, the employees as a support and the depicted network as a result. The process gathers data about the network and depicts it in a result.

The following figures depicts the respective process.

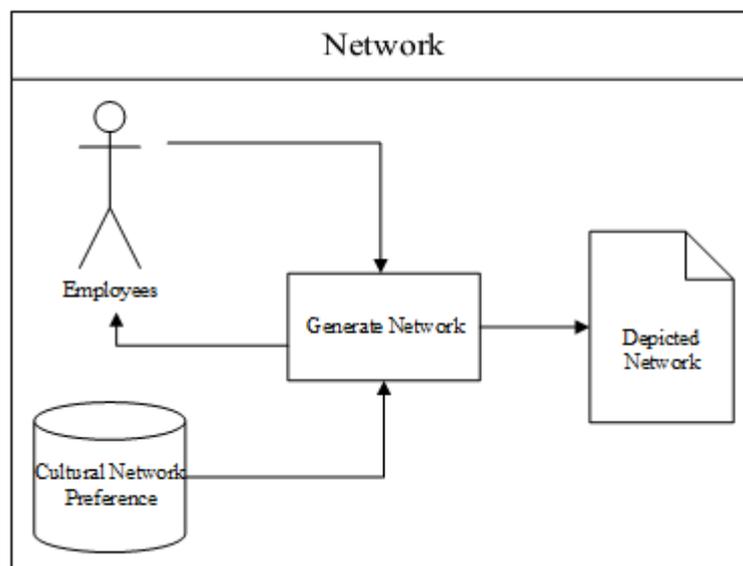


Figure 68: Network (Own Depiction)

6.1.10.2 Methodology

IT could support the situation by having the problem description and the cultural methodology preference as an input, the methodology proposal as a process and the

proposed methodology as a result. Here, the process suggests a suitable method to solve the problem with respect to the cultural preferences.

The following figures depicts the respective process.

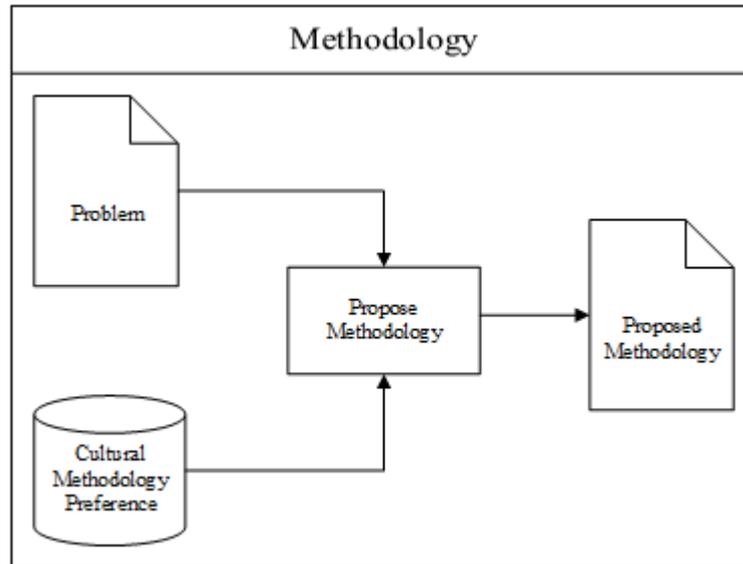


Figure 69: Methodology (Own Depiction)

6.1.10.3 Separation of Business Environment

IT could support the situation by having the problem description, the business network and the cultural environment separation preference as an input, the environment dependencies calculation as a process and the environment dependencies as a result. The process calculates the dependencies depending on the business network, the problem itself and the cultural preference and proposes the depicted dependencies.

The following figures depicts the respective process.

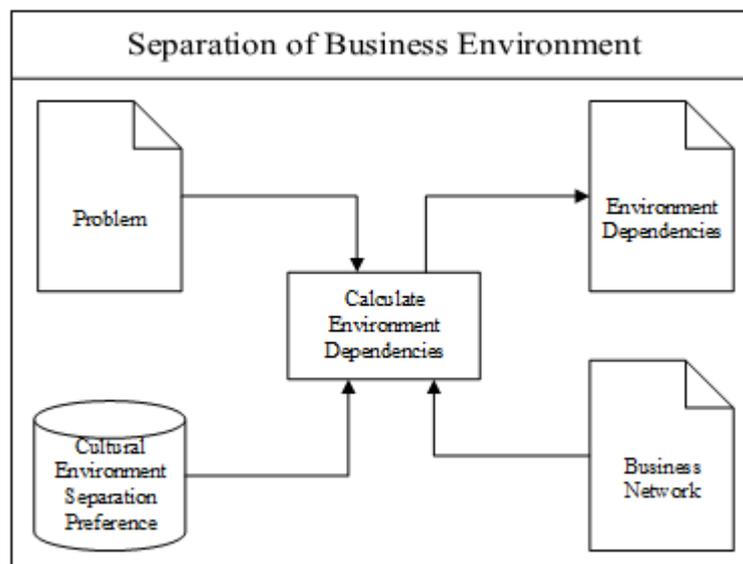


Figure 70: Separation of Business Environment (Own Depiction)

6.1.11 Case Ten: Knowledge Issues

Mr. Mustermann has a certain understanding towards knowledge issues. In Korea, the need for information is different, as the Korean colleagues need much less information to decide. The focus on results is different also. Mr. Mustermann feels reluctant to share his knowledge, as in Korea, when rewarded, it is more open-minded. In addition, the importance of skills is viewed differently.

Case	Common Problems	Possible Support Processes
10	Different need for information Different focus on results Different style of knowledge sharing Different Style of skills training	Need for information Results Knowledge sharing Skills training

Table 67: Case 10 Description (Own Depiction)

Therefore, Mr. Mustermann needs to understand the discrepancies in the need for information between cultures. The focus on results is also essential to understand when dealing with other cultures. Both knowledge sharing and skills training is important to understand the differences. In the following, the possible support processes are discussed.

6.1.11.1 Need for Information

IT could support the situation by having the information, the cultural information need preference and further information as an input, the degree of information adjustment as a process and the adjusted information as a result. The process either enriches the current available information with further information when the cultural preference is high need for information. A low need for information is vice versa.

The following figures depicts the respective process.

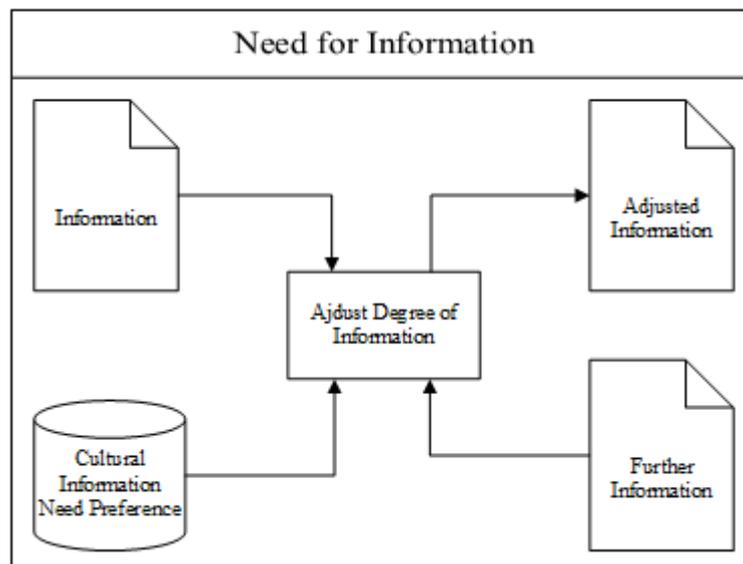


Figure 71: Need for Information (Own Depiction)

6.1.11.2 Results

IT could support the situation by having the results, the cultural results preference and addition results as an input, the enhancing of the results as the process and the enhanced results as a result. The process should enhance the results with further information to make it easier to understand the way to get to the results.

The following figures depicts the respective process.

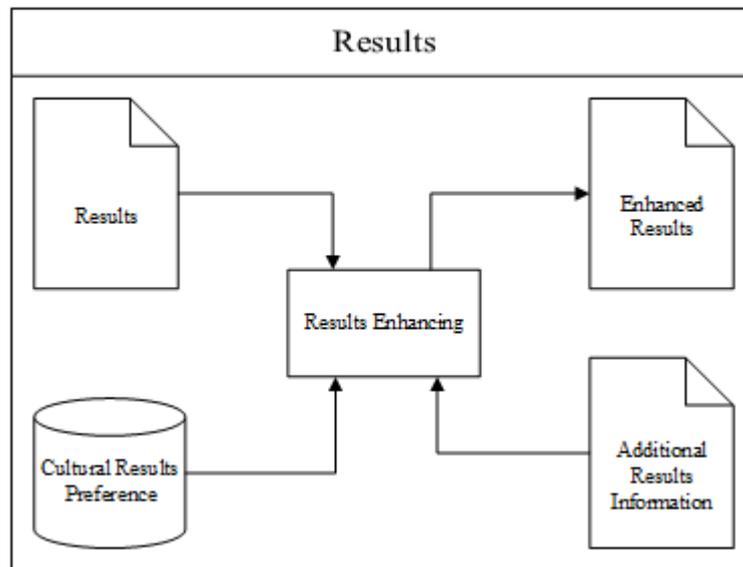


Figure 72: Results (Own Depiction)

6.1.11.3 Knowledge Sharing

IT could support the situation by having the cultural knowledge sharing preference and new knowledge as an input, the knowledge sharing as the process, supported by IT to distribute the knowledge and possible rewards as a result. The process, supported by IT to distribute, is responsible for sharing the knowledge. Depending on the cultural knowledge sharing preference, it is distributed differently and depends on if a reward for the sharing is culturally expected.

The following figures depicts the respective process.

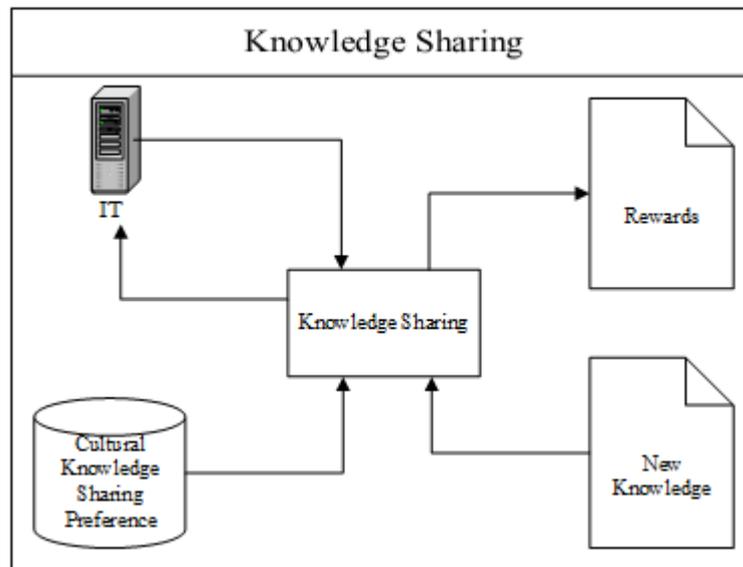


Figure 73: Knowledge Sharing (Own Depiction)

6.1.11.4 Skills Training

IT could support the situation by having the cultural skills preference as an input, the skills / knowledge training support as a process, supported by IT to moderate the training and the employee as a user. The process enhances the efficiency and effectiveness of the skills training as being moderated by IT.

The following figures depicts the respective process.

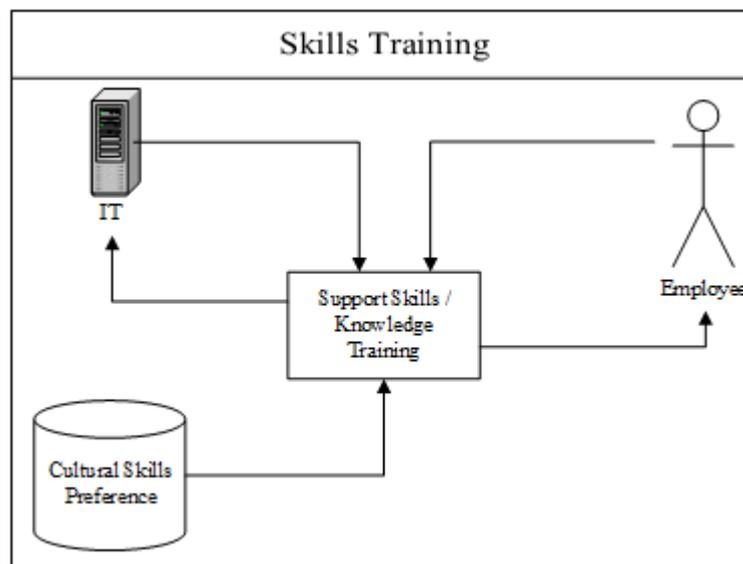


Figure 74: Skills Training (Own Depiction)

6.2 Final Conceptual Model

After all propositions and concepts have been derived and discussed, the final conceptual model will be elaborated. The following figure adapted from the famous ARIS-House⁴⁸⁴, which has a data, organizational, functions and control view.

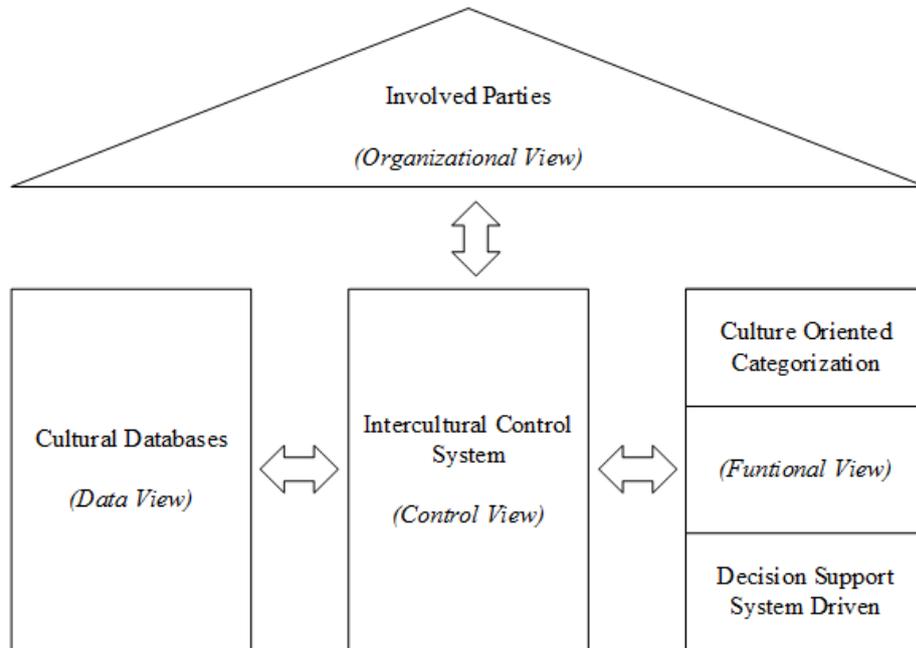


Figure 75: Architecture of the Final Conceptual Model (Own Depiction)

The data view consists of the needed intercultural databases. The organizational view consists of the involved parties of the system. The functions view consists of the needed functions within the system, which are categorized in a culture oriented and decision support system focus. The control view is the intercultural control system. This view combines the other views and controls the situation. The entire system, including all views, forms the final conceptual model. The respective views are further discussed in the following chapters.

6.2.1 Data View

The previously developed support processes include cultural databases, which consist of cultural information (e.g. color interpretations). In the following figure, the entire set of cultural databases is depicted.

⁴⁸⁴ <http://www.enzyklopaedie-der-wirtschaftsinformatik.de/lexikon/daten-wissen/Informationsmanagement/Business-Engineering/-Business-Engineering--Ansatz-des-Architektur-integrierter-Informationssysteme->



Figure 76: Cultural Databases (Own Depiction)

6.2.2 Functional View

The purpose of this thesis is to investigate the interrelation between culture and decision support systems. Therefore, the functional view is separated into two categorizations, the culture oriented and the decision support system driven. This is done to bring the processes into relation to both fields and then combining them into the functional view.

6.2.2.1 Culture Oriented

The culture oriented categorization is about culture related orientations. These orientations include document oriented, group oriented, formalization oriented, technology oriented, structure oriented, knowledge oriented, visualization oriented and task oriented. The categorization does not follow any sequence. In the following figures, the processes are categorized with respect to cultural topics.

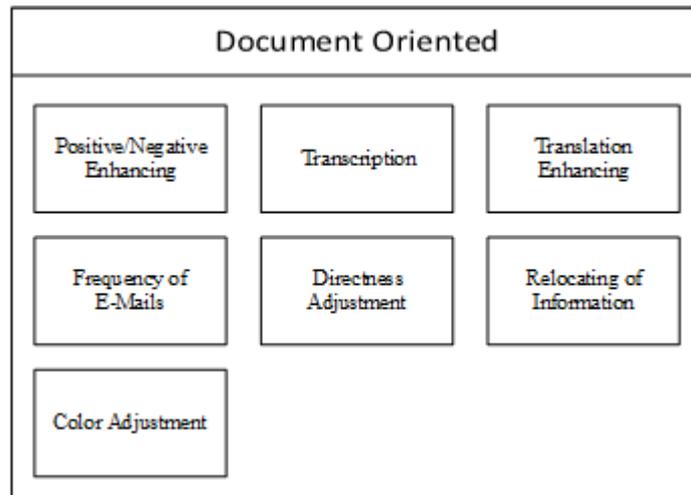


Figure 77: Document Oriented Categorization (Own Depiction)

The document oriented categorization includes positive/negative enhancing, transcription, translation enhancing, frequency of E-Mails, directness adjustment, relocation of information and color adjustment. Here, all processes focus on documents (e.g. E-Mails, reports, etc.). This is beneficial for an organization, because, when there are culture related problems or misunderstandings that are related to documents, organizations can then easily use the suggested support processes to resolve that problems or misunderstandings.

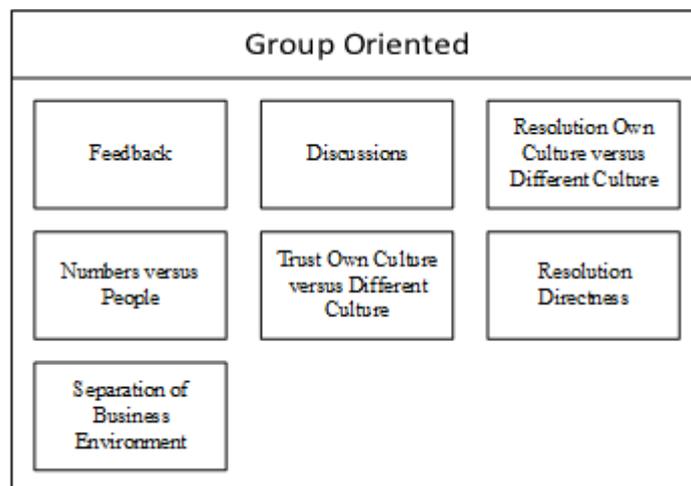


Figure 78: Group Oriented Categorization (Own Depiction)

The group oriented categorization includes feedback, discussions, resolution own culture versus different culture, numbers versus people, trust own culture versus different culture, resolution directness and separation of business environment. Here, all processes focus on groups (e.g. discussions, conflicts, etc.). This is beneficial for an organization, because, when there are culture related problems or misunderstandings that are related to groups, organizations can then easily use the suggested support processes to resolve these problems or misunderstandings.



Figure 79: Formalization Oriented Categorization (Own Depiction)

The formalization oriented categorization includes compliance, contracts and privacy. Here, all processes focus on formalization (e.g. rules, regulations, etc.). This is beneficial for an organization, because, when there are culture related problems or misunderstandings that are related to formalization, organizations can then easily use the suggested support processes to resolve these problems or misunderstandings.



Figure 80: Technology Oriented Categorization (Own Depiction)

The technology oriented categorization includes usage of software and technology acceptance. Here, all processes focus on technology (e.g. software, devices, etc.). This is beneficial for an organization, because, when there are culture related problems or misunderstandings that are related to technology, organizations can then easily use the suggested support processes to resolve these problems or misunderstandings.

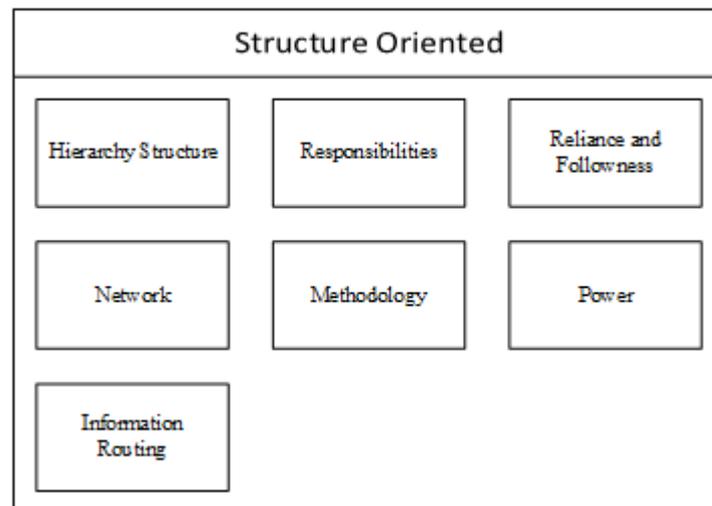


Figure 81: Structure Oriented Categorization (Own Depiction)

The structure oriented categorization includes hierarchy structure, responsibilities, reliance and followness, network, methodology, power and information routing. Here, all processes focus on structure (e.g. hierarchy, responsibilities, etc.). This is beneficial for an

organization, because, when there are culture related problems or misunderstandings that are related to structure, organizations can then easily use the suggested support processes to resolve these problems or misunderstandings.

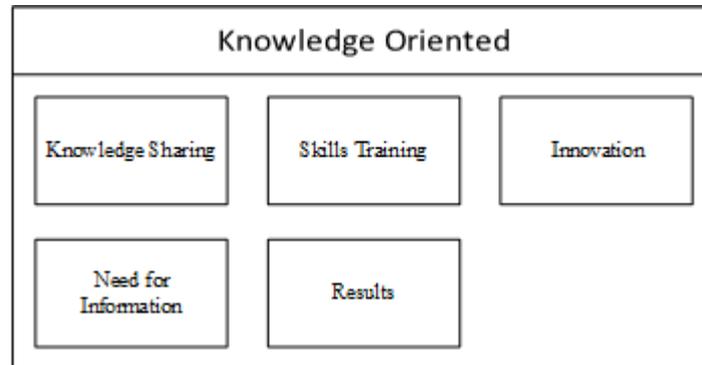


Figure 82: Knowledge Oriented Categorization (Own Depiction)

The knowledge oriented categorization includes knowledge sharing, skills training, innovation, need for information and results. Here, all processes focus on knowledge (e.g. knowledge database, information saturation, etc.). This is beneficial for an organization, because, when there are culture related problems or misunderstandings that are related to knowledge, organizations can then easily use the suggested support processes to resolve these problems or misunderstandings.

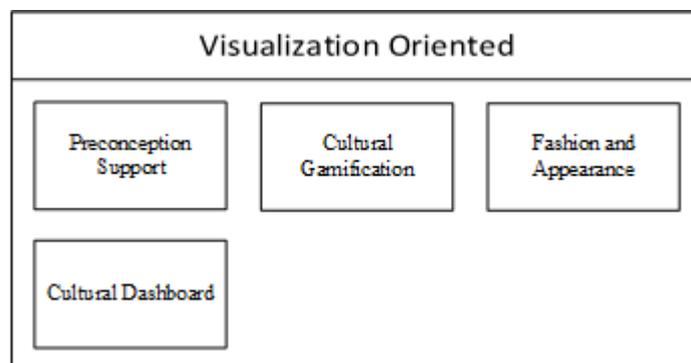


Figure 83: Visualization Oriented Categorization (Own Depiction)

The visualization oriented categorization includes preconception support, cultural gamification, fashion and appearance and cultural dashboard. Here, all processes focus on visualization (e.g. dashboard, multimedia system, etc.). This is beneficial for an organization, because, when there are culture related problems or misunderstandings that are related to visualization, organizations can then easily use the suggested support processes to resolve these problems or misunderstandings.

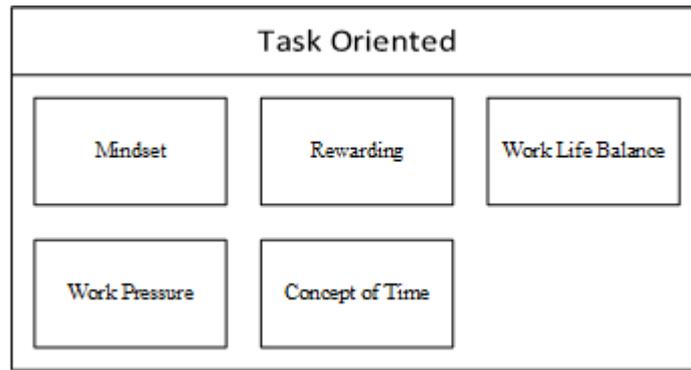


Figure 84: Task Oriented Categorization (Own Depiction)

The task oriented categorization includes mindset, rewarding, work life balance, work pressure, concept of time. Here, all processes focus on tasks (e.g. mindset towards work, rewards, etc.). This is beneficial for an organization, because, when there are culture related problems or misunderstandings that are related to tasks, organizations can then easily use the suggested support processes to resolve these problems or misunderstandings.

6.2.2.2 Decision Support System Driven

The decision support system driven categorization is about DSS framework orientations. Oppositely, the DSS driven categorization is more focused in the IT point of view than the culture oriented categorization. These orientations include communications driven, information driven, knowledge driven and model driven. The frameworks, as mentioned before, include data driven and document driven, however, the categorization could not be done completely distinctively. Consequently, the data driven and document driven framework are put together into an information driven framework. The categorization does not follow any sequence. In the following figures, the processes are categorized with respect to DSS frameworks.

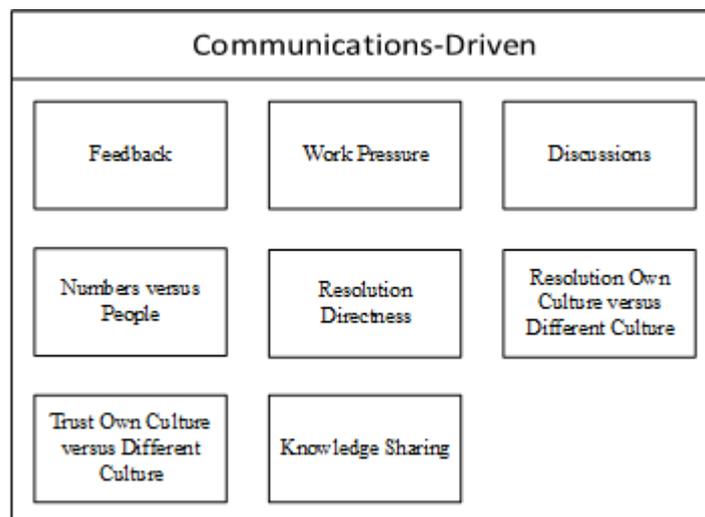


Figure 85: Communications-Driven Categorization (Own Depiction)

The communications driven categorization includes feedback, work pressure, discussions, numbers versus people, resolution directness, resolution own culture versus different culture, trust own culture versus different culture and knowledge sharing. Here, all processes focus on communications (e.g. feedback, numbers versus people, etc.). This is beneficial for an organization, because, when there are culture related problems or misunderstandings that are related to communications, organizations can then easily use the suggested support processes to resolve these problems or misunderstandings.

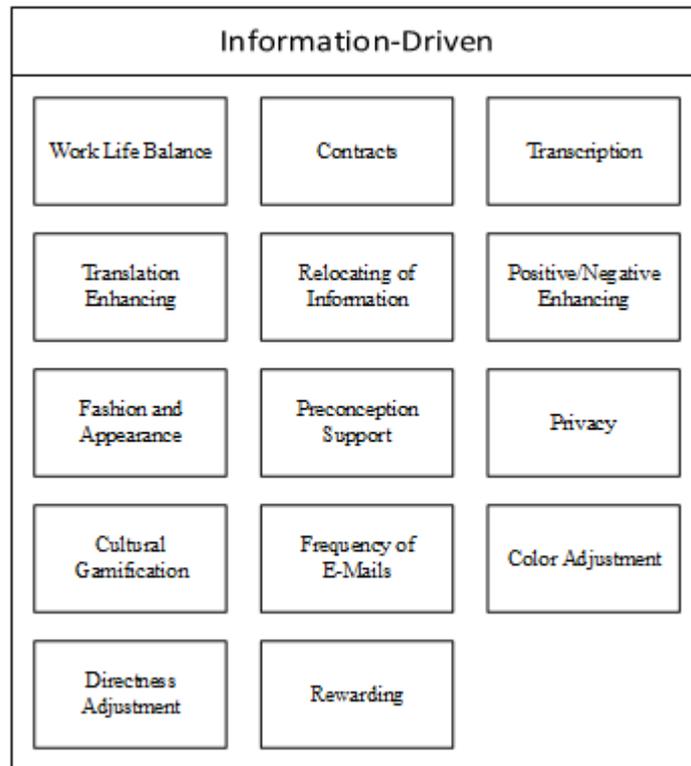


Figure 86: Information-Driven Categorization (Own Depiction)

The information driven categorization includes work life balance, contracts, transcription, translation enhancing, relocating of information, positive/negative enhancing, fashion and appearance, preconception support, privacy, cultural gamification, frequency of E-Mails, color adjustment, directness adjustment and rewarding. Here, all processes focus on information (e.g. transcription, translation enhancing, etc.). This is beneficial for an organization, because, when there are culture related problems or misunderstandings that are related to information, organizations can then easily use the suggested support processes to resolve these problems or misunderstandings.

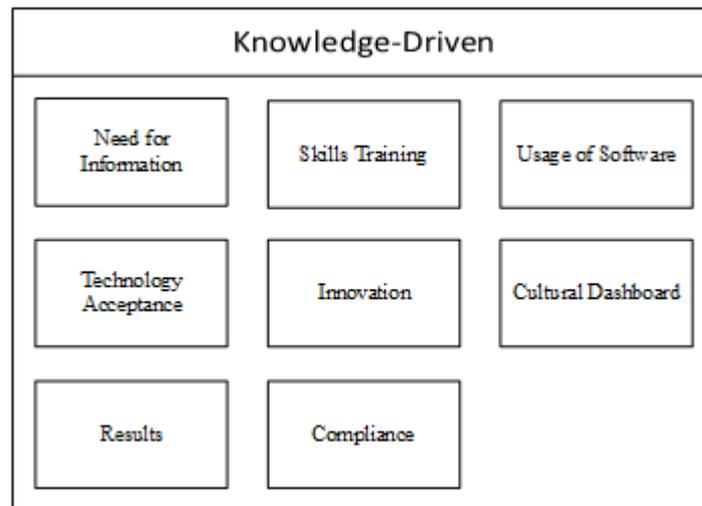


Figure 87: Knowledge-Driven Categorization (Own Depiction)

The knowledge driven categorization includes need for information, skills training, usage of software, technology acceptance, innovation, cultural dashboard, results and compliance. Here, all processes focus on knowledge (e.g. innovation, results, etc.). This is beneficial for an organization, because, when there are culture related problems or misunderstandings that are related to knowledge, organizations can then easily use the suggested support processes to resolve these problems or misunderstandings.

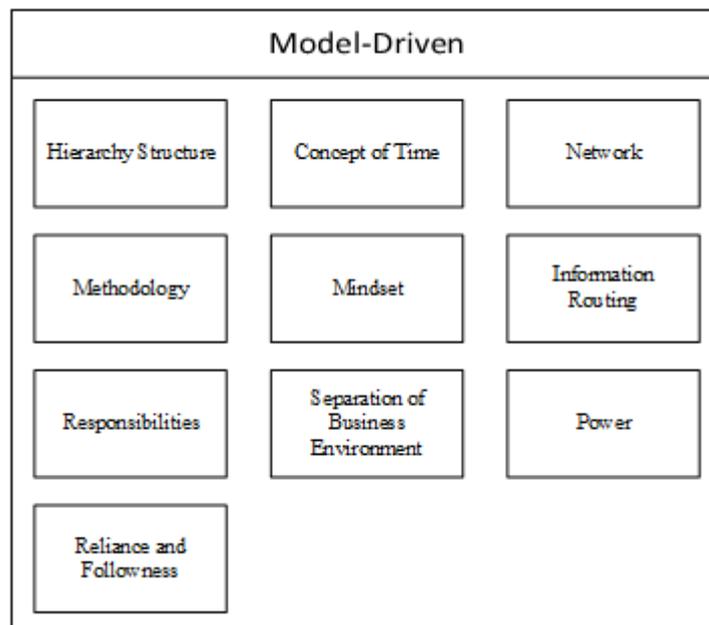


Figure 88: Model-Driven Categorization (Own Depiction)

The model driven categorization includes hierarchy structure, concept of time, network, methodology, mindset, information routing, responsibilities, separation of business environment, power and reliance and followness. Here, all processes focus on models (e.g. feedback, numbers versus people, etc.). This is beneficial for an organization, because, when there are culture related problems or misunderstandings that are related to models,

organizations can then easily use the suggested support processes to resolve these problems or misunderstandings.

6.2.3 Organizational View

Compared to the other views, the organizational view is rather simple in the final conceptual model. The involved parties are depicted in the following figure.

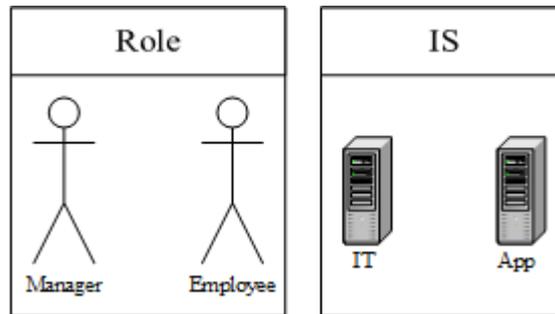


Figure 89: Involved Parties (Own Depiction)

The involved parties consist of the manager, employee, the IT and an app. The roles are used when the person is in focus and the IS is used when the IT is in focus.

6.2.4 Maturity Level

Another view on the final conceptual model is through the lens of a maturity model. The model can be viewed in three angles: reactive support, passive support and proactive support; respectively low, mid and high maturity of support. The categorization does not follow any sequence. In the following figures, the processes are categorized with respect to the level of maturity.

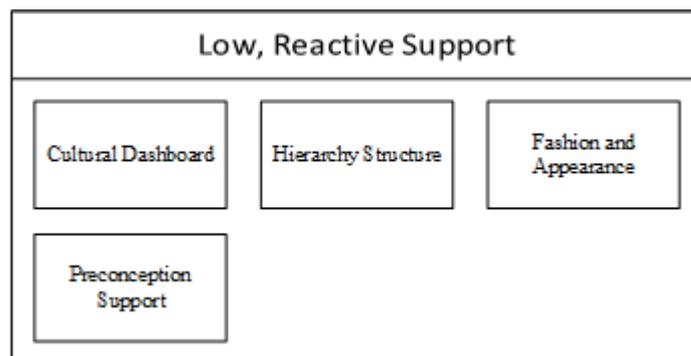


Figure 90: Low, Reactive Support (Own Depiction)

The low maturity categorization includes cultural dashboard, hierarchy structure, fashion and appearance and preconception support. The support is reactive; this means that the user of the intercultural decision support system has to start the process by himself and the DSS just 'reacts' to that. Consequently, the support can be seen as low level.

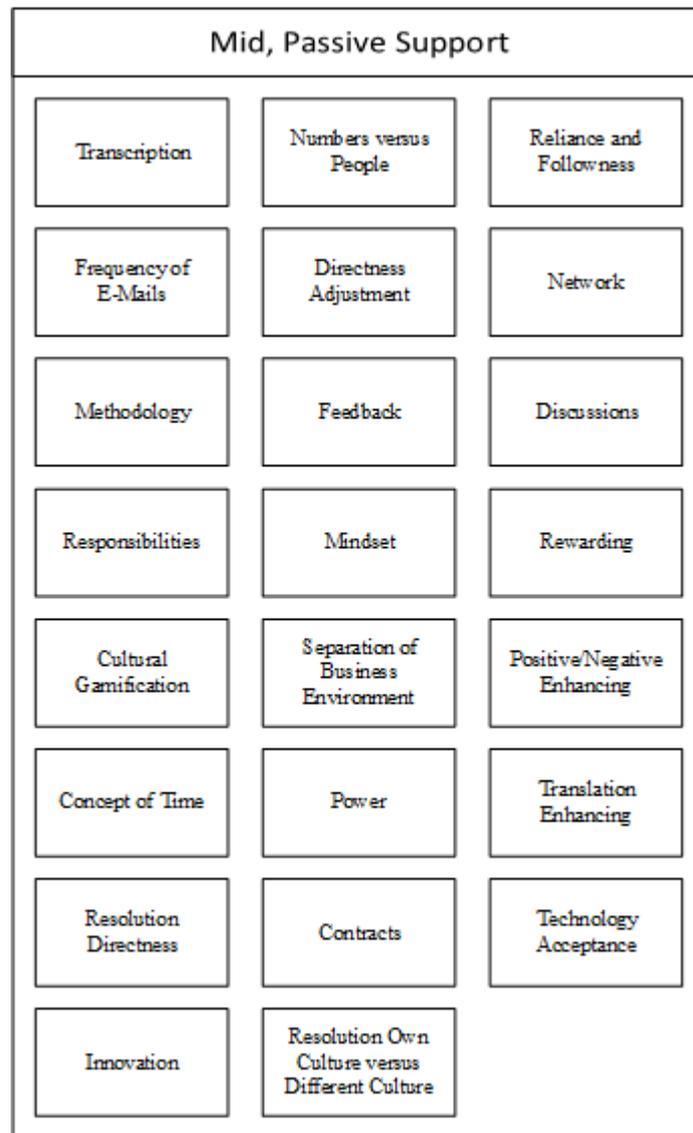


Figure 91: Mid, Passive Support (Own Depiction)

The mid maturity categorization includes transcription, numbers versus people, reliance and followness, frequency of E-Mails, directness adjustment, network, methodology, feedback, discussions, responsibilities, mindset, rewarding, cultural gamification, separation of business environment, positive/negative enhancing, concept of time, power, translation enhancing, resolution directness, contracts, technology acceptance, innovation and resolution own culture versus different culture. The support is passive; this means that the user of the intercultural decision support system does not have to start the process by himself, because the process runs automatically in the background. The support, however, is passive, as it does not change things automatically. It gives advices (e.g. mouse-over effect in E-Mails concerning the level of directness).

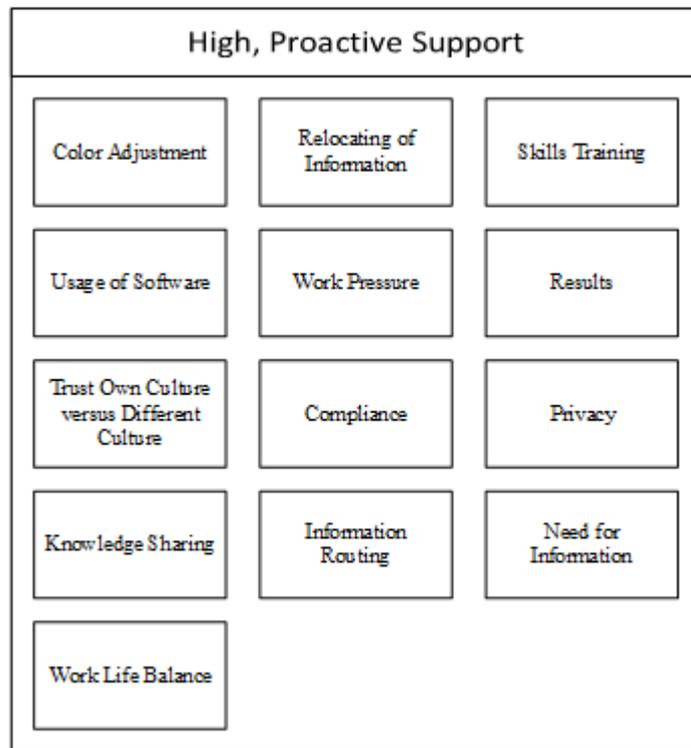


Figure 92: High, Proactive Support (Own Depiction)

The high maturity categorization includes color adjustment, relocating of information, skills training, usage of software, work pressure, results, trust own culture versus different culture, compliance, privacy, knowledge sharing, information routing, need for information and work life balance. The support is proactive; this means that, in comparison to the passive support, the proactive support also runs in the background, but proactively and directly supports the user (e.g. direct color adjustment of a visualization depending on the recipient's culture). Consequently, the IT has a higher importance in this maturity level than the two levels below.

6.2.5 Multidimensional Perspective

In the area of Business Intelligence, information is often stored in a multidimensional cube.⁴⁸⁵ The following figure puts the two categorizations (Culture oriented and DSS driven) into relationship with the maturity level of each process. Consequently, it can be easily depicted in a three-dimensional cube.

⁴⁸⁵ Cf. Rivest et al. (2005): 19–20.

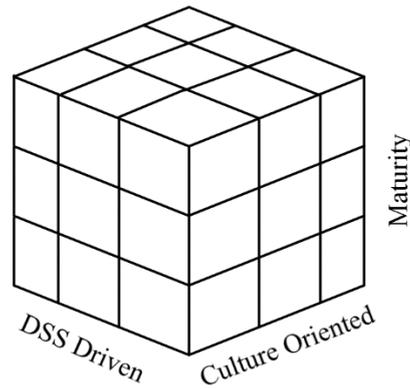


Figure 93: Multidimensional Perspective on the Final Conceptual Model (Own Depiction)

Making the visualization easier to read the cube is depicted in three two-dimensional tables. For example, the preconception support is visualization oriented, information driven and low maturity.

<i>Low Maturity</i>	Communication	Information	Knowledge	Model
Document				
Group				
Formalization				
Technology				
Structure				Hierarchy Structure
Knowledge				
Visualization		Preconception Support Fashion and Appearance	Cultural Dashboard	
Task				

Table 68: Intercultural Decision Support System Cube – Low Maturity (Own Depiction)

<i>Mid Maturity</i>	Communication	Information	Knowledge	Model
Document		Positive / Negative Enhancing Transcription Translation Enhancing Frequency of E-Mails Directness Adjustment		
Group	Feedback Discussions Numbers versus People Resolution Own Culture versus Different Culture Resolution Directness		Separation of Business Environment	
Formalization		Contracts		
Technology			Technology Acceptance	
Structure				Responsibilities Network Reliance and Followness Power Methodology
Knowledge			Innovation	
Visualization		Cultural Gamification		
Task		Rewarding		Mindset Concept of Time

Table 69: Intercultural Decision Support System Cube – Mid Maturity

<i>High Maturity</i>	Communication	Information	Knowledge	Model
Document		Relocating of Information Color Adjustment		
Group	Trust Own Culture versus Different Culture			
Formalization		Privacy	Compliance	
Technology			Usage of Software	
Structure				Information Routing
Knowledge	Knowledge Sharing		Skills Training Need for Information Results	
Visualization				
Task	Work Pressure	Work Life Balance		

Table 70: Intercultural Decision Support System Cube – High Maturity (Own Depiction)

After putting these processes into relationship the question finally arises whether the derived final conceptual model complies with a proper DSS.

6.2.6 Contrasting of the Final Conceptual Model to Aspects of a Proper DSS

After the final model has been discussed, there need to be a checking whether it complies with the 14 stereotypical characteristics and capabilities of a proper DSS.

	Characteristics and Capabilities	Intercultural DSS
1	Semistructured or Unstructured Problems	Yes
2	Support Managers at all Levels	Yes
3	Support Individuals and Groups	Yes
4	Interdependent or Sequential Decisions	Yes
5	Support Intelligence, Design, Choice and Implementation	Yes
6	Support Variety of Decisions Processes and Styles	Yes
7	Adaptable and Flexible	Yes
8	Interactive, Ease of Use	Yes
9	Effectiveness and Efficiency	Yes
10	Humans Control the Process	Yes
11	Ease of Development by End Users	Yes
12	Modeling and Analysis	Yes
13	Data Access	Yes
14	Stand-Alone, Integration, and Web-Based	Yes

Table 71: Contrasting of Characteristics and Capabilities of a DSS to Final Conceptual Model (Own Depiction)

The proposed intercultural decision support system complies with all 14 characteristics and capabilities. Additionally, it also complies with the five benefits a DSS should offer.

	Pursued Benefits	Intercultural DSS
1	Improve individual productivity	Yes
2	Improve decision quality and speed up problem solving	Yes
3	Improve interpersonal communications	Yes
4	Improve decision-making skills	Yes
5	Increase organizational control	Yes

Consequently, the final conceptual model can be seen as a proper proposal for a DSS and be named an *Intercultural Decision Support System*.

7 Conclusion

This thesis investigates the topic of the interrelation between culture and decision support systems. The purpose was to understand which areas of culture could be supported by decision support systems. Here, the developed **Intercultural Decision Support System** bridges the gap between the culture, in specific national culture, and decision support systems body of knowledge.

The result of this thesis is able to make important contributions to both the theoretical and practical body of knowledge. To the best knowledge, this is the first study that provides insights in the interrelation between national culture and decision support systems. Consequently, this thesis contributes in several ways.

7.1 Contributions to Theory

The theoretical model consists of national cultural concepts that can be supported by decision support systems.

RQ1: The concepts in an organizational setting that are influenced by national culture have been identified.

RQ2: How these concepts could be supported by a decision support system/information system has been identified.

Science benefits from the model in this thesis. This helps scholars in both the cultural and information systems disciplines raising their attention and consequently improving their understanding of the interrelation between culture and decision support systems. This advances our understanding of both national culture and decision support.

Overall, most statements are consistent with literature. Current literature can be utilized as a guideline to predict behavior. Nevertheless, further research should be conducted to achieve a more consistent and precise outcome.

Positively, national culture is, unless a dramatic crisis occurs, not going to change dramatically within the next century.⁴⁸⁶

7.2 Implications for Practice

The validated conceptual model has implications for managerial practices. The model extends and integrates cultural awareness in the field of decision support systems, especially while the supportiveness on the national cultural areas rated as influential. It can be expected, eventually, when cultural awareness is tried to be implemented and finally integrated as a substantial part within an organization, its resources and capabilities will

⁴⁸⁶ Cf. Hofstede (2001): 36.

improve in efficiency and effectiveness. Considering that implementing culture into the field of decision support systems is quite complex, culture-specific customizing might be an approach coping with this complexity. Here, the actual present cultures are being compared and contrasted, so the possible problems can be identified. When members of other cultures join the organizational setting, this should be considered with respect to the existing ones. It can be assumed that this incremental approach might be more effective and cost efficient than an all-embracing consideration of all possible cultures. Personal experience is still mandatory in working effectively in an international context as purely studying theoretical models is rather counterproductive.⁴⁸⁷

The collected empirical data validates the conceptual model. The validated conceptual model can serve as a basis when dealing with an international workforce. In the absence this consideration could lead, especially by the growing internationalization of organizations, to bigger problems than ever before. Managers, therefore, need to communicate the existence of cultural differences to foster acceptance of different behavior. Optimally, this is done before national cultural misunderstandings have occurred. However, this should not only be a task of a single manager, but a task of the entire organization. Here, a program of dealing with diversity would enhance the performance of single practices and, consequently, the overall organization's performance. Just pointing out general differences in behavior cannot lead to better performance.

Organizations considering the conceptual model are now able to identify which cultural areas could be supported by decision support systems. This is beneficial to organizations that have implemented or are planning to implement intercultural practices in general.

7.3 Limitations and Future Research

The research in this thesis has several limitations that need to be taken into account when benefiting from these results. In this study, the empirical data consist of interviews from and 32 interviewees. Hence, it is a small random sample. Consequently, the conceptual model, in specific the **Intercultural Decision Support System** grounds on the small set of qualitative interview findings and the literature review. The validation of the findings is bound to limitations in time and space; hence, it only depicts certain personal opinions of the interviewed professionals on the conceptual model.

Future research should aim at receiving more precise answers and possible results by conducting a more detailed questionnaire. Doing so, one aspect should not be neglected.

⁴⁸⁷ Cf. Perkins (2009): 83.

When translating into other languages it might lead to problems as not all concepts are precisely translatable.⁴⁸⁸ A further aspect is the interdependencies of the areas. In this thesis, the areas are assumed to have no influence on each other. Further research should investigate if there is any interrelation and how it is shaped.

In addition, this thesis is based on the idea national and organizational cultures are distinct, which is based prominent research. Even though there is a strong tendency that members of a national culture behave according to literature, there are statements that show individual experience and the organizational culture can strongly influence their behavior.

The conducted interviews are bound to two categories of interviewees: German employees in German organizations, Korean employees in Korean organizations. The interviews were conducted in Germany and Korea. The thesis bases on the idea that employees working abroad still behave according to their national culture. This is according to Hofstede's idea that: Even though organizations have a strong coordination with their international subsidiaries, the employees with different cultural backgrounds behave differently. Employees behave according to their root national culture and not according to the organization's root national culture.⁴⁸⁹ Nevertheless, further research should also conduct interviews with other national cultures, as living abroad for a longer time changes each behavior, so you do not behave stereotypical anymore.⁴⁹⁰ In addition, the intercultural rules of our ancestors might not apply anymore in today's digitalized globalized world. Therefore, there is still much research that needs to be conducted.⁴⁹¹

A DSS has the limitation that it is developed for a designated purpose and therefore is limited to a certain 'domain'.⁴⁹² Consequently, the developed *Intercultural Decision Support System* is limited to the national culture in an organizational setting. In addition, it was derived by only the German and the Korean culture.

Another limitation of a DSS is that it cannot be supportive, even though it offers benefits, if decision makers do not use and 'live' the system.⁴⁹³ Nevertheless, I hope that the future research will build upon the theory I proposed here and support the future convergence of national culture and decision support systems.

⁴⁸⁸ Cf. Curtis/Conover/Chui (2012): 28.

⁴⁸⁹ Cf. Hofstede (2001): 384.

⁴⁹⁰ Cf. Kim (2014): 96.

⁴⁹¹ Cf. Liu/Volčič/Gallois (2011): 7.

⁴⁹² Cf. Power (2002): 34.

⁴⁹³ Cf. Power (2002): 34.

7.4 Acknowledgments

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