Title	Collaborations of Japanese and Germans in the IT business : characteristics and challenges
Sub Title	
Author	Schneider, Rupert(Toma, Tetsuya) 当麻, 哲哉
Publisher	慶應義塾大学大学院システムデザイン・マネジメント研究科
Publication year	2017
Jtitle	
JaLC DOI	
Abstract	
Notes	修士学位論文. 2017年度システムデザイン・マネジメント学 第262号
Genre	Thesis or Dissertation
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=K040002001-00002017-0012

Master's Dissertation 2017

Collaborations of Japanese and Germans in the IT Business: Characteristics and Challenges

Rupert Schneider
（Student ID Number：81534630）

Supervisor Prof. Tetsuya Toma

September 2017

Graduate School of System Design and Management,
Keio University
Major in System Design and Management

SUMMARY OF MASTER'S DISSERTATION

Student Identification Number	81534630	Name	Rupert Schneider

Title

Collaborations of Japanese and Germans in the IT Business: Characteristics and Challenges

Abstract

Today's IT business is increasingly globalized, with teams collaborating under conditions of geographical, temporal and cultural distance. Recent research has focused on the challenges this brings to software development. In doing so, researchers have either investigated the challenges of globalization on an abstract level or considered cases of collaborations involving nationals from specific countries, but from a narrow perspective. This thesis describes a study on collaborations between Japanese and Germans in the IT business, its characteristics and challenges from a system's perspective. It takes a different approach from previous research by focusing on the aspect of collaboration rather than software development, investigating a specific combination of nationalities, and taking a holistic perspective. Results are based on semi-structured interviews with IT professionals, a questionnaire, economic statistics, as well as a review of literature on culture, global software development and industry characteristics.

The challenges identified are language barrier, decision-making, differences in communication behavior, differences in client-supplier relationship, different prioritization of work life and private life, different software customization expectations, establishing trust, and time difference. Results indicate that awareness of differences enables to avoid most difficulties and major conflicts between Japanese and Germans are rare except for those related to subject matters.

For facilitating collaborations, I suggest trainings which specifically address the identified challenges; in particular, training on language, certain cultural aspects and IT market characteristics. I recommend to supplement formal trainings by assigning "cultural mentors" offering continuous support throughout collaborations. I propose additional measures, such as using employees as "cultural bridge", to further enhance communication.

Key Words: Japan, Germany, collaboration, culture, information technology

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

1.1 Background and Motivation

Globalization is an ongoing trend which is, arguably, more visible in the Information Technology (IT) business than anywhere else. Due to its software-intensive nature and often the absence of a physical product, IT offers perfect conditions for global development and marketing of products and services.

Globalization has led to cross-border and cross-cultural collaborations becoming commonplace in the IT business. Prominent examples are the global delivery of IT goods and services as well as software outsourcing and offshoring. Cross-border and cross-cultural collaboration in the context of software development has received attention in the research community under the key words “global software development” or “distributed software development”.

Global software development has become a powerful trend in the IT industry within the past 20 years [1], [2]. The internet has enabled geographically distributed teams to conduct software development projects regardless of national borders [1]. Companies have been using this possibility in the form of outsourcing and offshoring [1]. The incentives for this are often, but not exclusively, cost savings. Tapping into new labor markets in foreign countries can offer access to a skilled and cheap labor force [3]. Leveraging different time zones can, at least in theory, increase the time to market by enabling “follow the sun” development, in which e.g. developers in India start their work day when their colleagues in the U.S. end theirs [2]. Time zone differences are also used to enable 24/7 support throughout the year. Further advantages include an easier software localization,

matching of local market needs and the innovative potential of a diversified work force [3].

Starting from around 2000, an increasing number of publications by empirical researchers have established Global Software Development as a new field of investigation [4]. Early examples of such research identify a number of challenges in Global Software Development [5]. At the core of these is the issue of distance, not only including geographical, but also temporal and socio-cultural distance [6].

Particularly the influence of cultural differences has received increased attention in the last 15 years (e.g. [7]–[10]). A number of case studies have investigated the role of culture in various global software development projects, commonly in the context of a developed country outsourcing software development to a developing country with lower labor costs (e.g. [3], [7], [8], [11]–[13]).

Regarding the area covered by research so far, I make two observations.

First, in the area of IT collaborations researchers have almost exclusively focused on software development, while giving little attention to other areas of the IT business, such as consulting. Research so far has not attempted to build a holistic picture of the factors that impact IT collaborations between any specific two countries.

One the one hand, there are studies that deal with (country-)specific cases, but focus only on certain aspects of them, such as culture ([10], [11], [13]–[16]), coordination (e.g. [17], [18]), or requirements engineering (e.g. [10], [19], [20]). However, global collaborations take place in a complex context, which is shaped by factors including culture, politico-economic conditions, and history. This context is not considered in any of the aforementioned studies. Not doing so means that interrelations among the factors that influence collaborations remain hidden.

On the other hand, some research has dealt with the challenges of global collaborations in general terms in the area of software development (e.g. [2], [5], [21]). While they consider a broader picture of IT collaborations, the usefulness of this perspective for understanding the characteristics of collaborations between nationals of two given countries is limited, since it ignores country-dependent factors (e.g. surrounding economic conditions, trade relations or culture) or only deals with them in an abstract, superficial way.

Second, with few exceptions the cases investigated in research so far feature a company located in a Western, developed nation and another company or company branch in a developing country. Little attention has been given to any kind of collaboration between companies (or within companies) with both sides coming from economically advanced countries (e.g. [22]). This is relevant since the former case is likely to result in a situation of unequal power distribution between the partners, with one feeling pressured to adjust to the other's culture unilaterally. The latter case promises to result in a different dynamic.

Given this, the case of Japanese and Germans collaborating in IT promises to be interesting for a number of reasons. First, it has not been covered in research so far. Second, Japanese-German collaborations have different characteristics from collaborations between other countries, given that both countries are highly developed. In particular, there is little incentive for a company in one of the two countries to outsource software development to the other, since cost savings from doing so are very unlikely. Collaborations in other contexts, such as IT consulting, are common. Third, according to Hofstede’s model of cultural dimensions (cf. chapter 2.1), Germany and Japan have some cultural similarities despite being a Western European and a Far Eastern nation. Fourth, Germany and Japan also have a number of commonalities regarding the broader economic

and social context. They have equally developed economies with strong manufacturing sectors and a high number of small and medium-sized enterprises. Their societies are secular and face a demographic problem of aging; both countries have well-established social welfare systems. This list is certainly not exhaustive and should not suggest the absence of major differences. Still, it illustrates that in terms of the broader socio-economic framework Japanese and German companies are operating in a similar context (with some exceptions which will be explained in following chapters).

Given these similarities, it is not apparent whether and in which areas conflicts between Japanese and Germans are likely to happen in IT collaborations and to which degree collaborations run smoothly. This is investigated in this thesis.

1.2 Prospect of Increased Japanese-German Collaboration in the Future

The relevance of the research topic is intensified by several current developments which make collaborations between Japanese and Germans more likely in the future.

First, in June 2017 Japan and the European Union (EU) reached a principle agreement on a free trade agreement (FTA)[23]. In 2016, Germany's bilateral trade with Japan was 40.2 billion Euro in total, accounting for a major part of the total Japan-EU bilateral trade of 124.7 billion Euro [23]. A study published by the German Bertelsmann foundation estimates a potential increase in GDP by up to 0.7% for Germany and up to 1.6% for Japan as an outcome of the FTA [24]. In particular, the study sees “substantial gains” for Japan’s computer and electronics sectors [24, p. 15]. On the European side, it sees “the gains from the EU-Japan agreement (…) strongly concentrated on Germany” [24, p. 43]. An increase in bilateral trade following the Japan-EU FTA makes increased collaboration between Japanese and Germans likely in the future.

Second, in April 2016 Germany's Federal Ministry for Economic Affairs and Energy and Japan's Ministry of Economy, Trade and Industry (METI) released a joint statement on cooperation in the area of the Internet of Things (IoT) / Industrie 4.0 [25]. One stated objective of the cooperation is to "promote and support cooperation between companies, research institutes and platforms, namely the Robot Revolution Initiative and Plattform Industrie 4.0, from both countries in the field of IoT/Industrie 4.0" [25, p. 1].

Third, the demographic structure of the Japanese and German population is very similar (cf. Figure 1; source: [26]). Both countries face the problem of an aging society and a shrinking work force. Products and solutions that address these problems in one country (e.g. robotics, artificial intelligence) are likely to find an attractive market in the other country as well. This makes an increased amount of collaboration in the future seem likely.

Successful collaboration does not only dependent on regulations, but also on the ability of people of different nationalities to work together without major conflicts. This thesis investigates how far this is the case for collaborations between Germans and Japanese in the IT business.

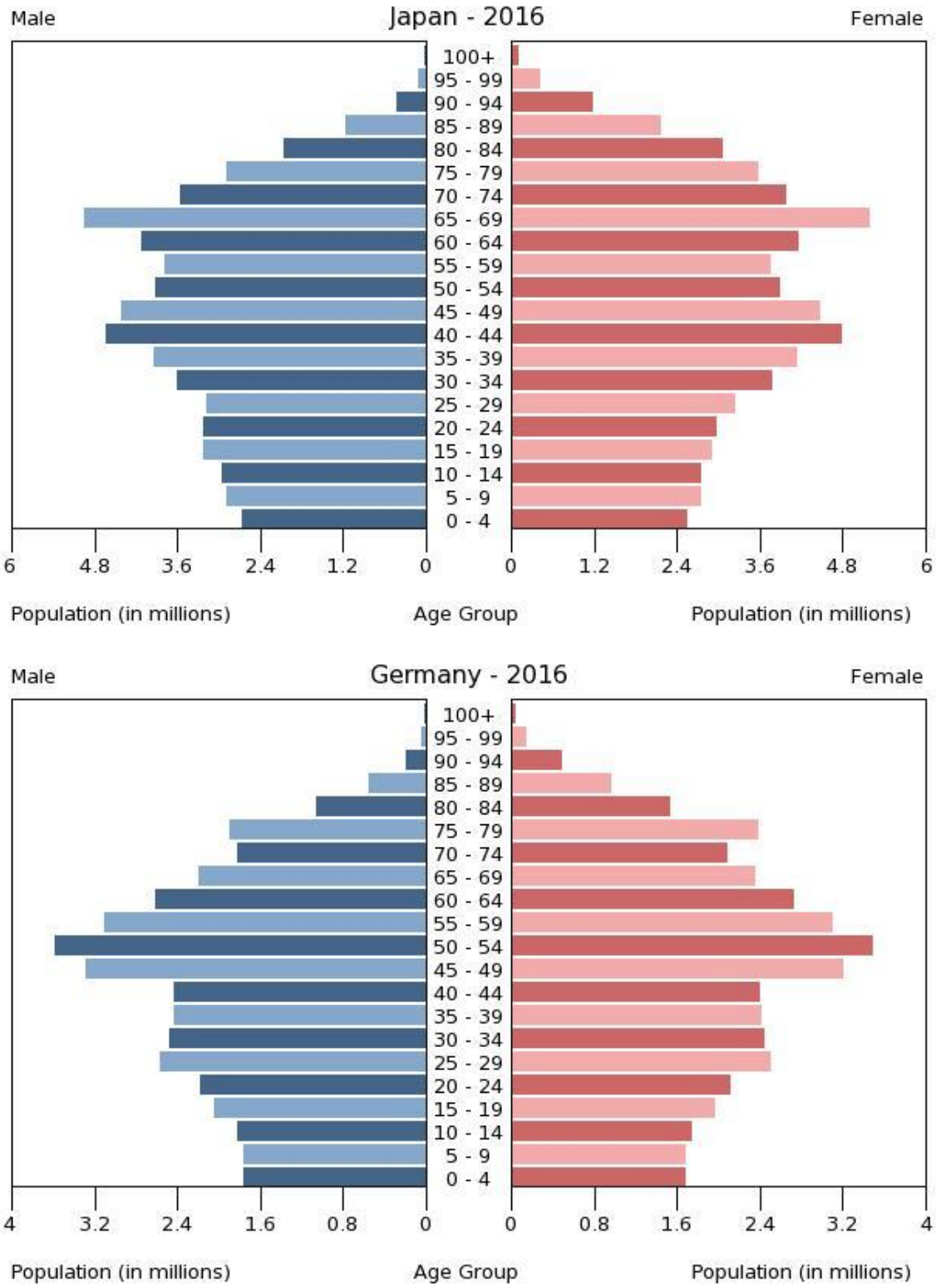

FIGURE 1 POPULATION PYRAMIDS OF JAPAN AND GERMANY, 2016. SOURCE: CIA WORLD FACTBOOK [26]

1.3 Definition and Scope of "Collaborations" in this Research

The Merriam-Webster Dictionary defines the verb "to collaborate" as: "to work jointly with others or together especially in an intellectual endeavor". In this thesis, I understand "collaboration of Japanese and Germans" or "Japanese-German collaboration" as a situation in which Japanese and Germans nationals work together. Examples include colleagues working at the same company (or different subsidiaries of the same company), partners in development projects, client and supplier/service provider, etc.

In this research, only collaborations in the context of the IT business are investigated. The scope does not include collaborations which are unrelated to IT or happen outside of a business context (such as students working on a project at a university).

Throughout this thesis, I am going to refer to the Japanese and German people who take part in a collaboration as "collaboration partners" or just "partners".

1.4 Purpose

Given the background described earlier, this work investigates collaborations of Japanese and Germans in the IT industry from a systems perspective, aiming to provide a holistic view of the factors that characterize it and typical problems between the partners. There are two research questions:

1. Which factors shape collaborations of Japanese and Germans in the IT business?
2. What are the typical difficulties experienced in such collaborations?

The contribution is, first, to provide a holistic perspective on one specific class of collaborations, i.e. between Japanese and Germans in an IT business context. Second, to investigate the case of collaborations between Japanese and Germans and thus a case that has received little attention in the research community.

Results are intended to be useful for practitioners who take part in any kind of IT-related Japanese-German collaboration and want to get an overview of and prepare for problems that frequently occur in this setting.

1.5 Structure

This thesis has the following structure. Chapter 1 introduces the background and motivation for the topic. Chapter 2 summarizes related literature. Chapter 3 describes the research methodology. Chapter 4 describes the findings. Chapter 5 discusses findings and includes recommendations for facilitating collaborations between Japanese and Germans. Chapter 6 summarizes and concludes the thesis.

2. Literature Review

This chapter reviews existing literature related to collaborations of Japanese and Germans in the IT business. This includes research on culture, global software development, the Japanese and German software industry, and a case study by Brannen and Salk on a Japanese-German joint venture from the late nineties.

2.1 Cultural Differences and Geert Hofstede's Cultural Dimensions

One factor which is likely to cause difficulties in collaborations is culture. When talking about cultural differences, one essential precondition is the ability to classify and compare two given cultures. Social research has come up with different systems in order to do so. One approach uses so-called "cultural dimensions"—a standardized set of variables which is used to quantify certain aspects of cultures. In research on culture in global software

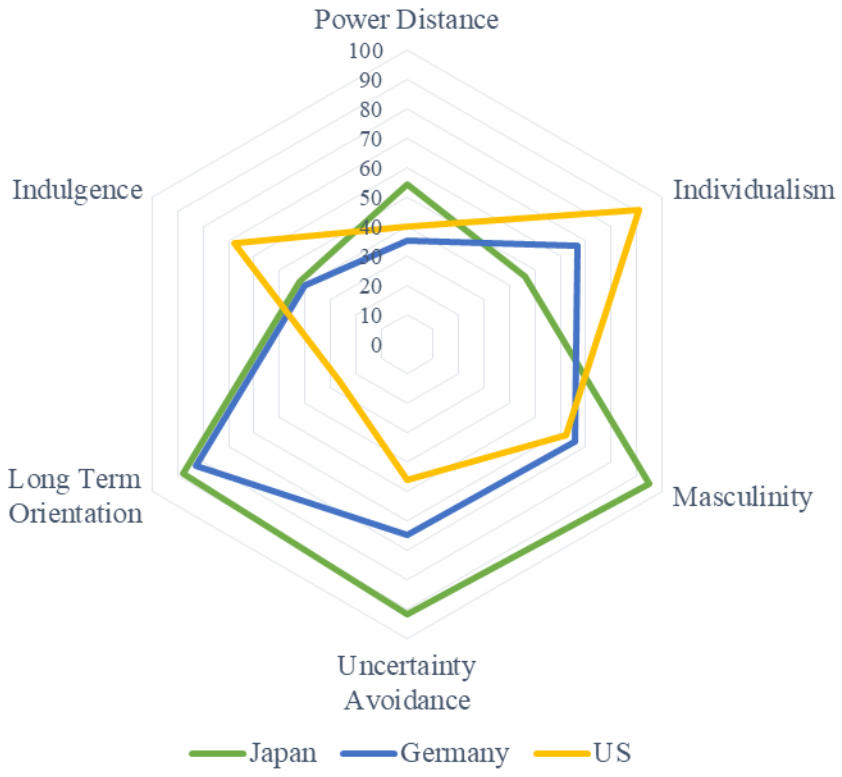

Figure 2 Values for Japan, Germany and the US on Hofstede's cultural dimensions (values from [27]).

development, the most prominent approach to date is the model of cultural dimensions developed by the Dutch researcher Geert Hofstede.

Culture is an inherently vague concept which is difficult to define clearly. Different researchers have proposed a variety of definitions which emphasize different aspects of culture, sometimes with a bigger and sometimes with a smaller scope. Hofstede defines culture as "the collective programming of the mind that distinguishes the members of one group or category of people from others" [27]. This thesis follows this definition. It emphasizes that culture is relative, i.e. characteristics of one culture are only visible in comparison with another culture. Hofstede also points out that culture “is always a collective phenomenon”, “derive(d) from one’s social environment” and “should be distinguished from human nature on one side and from an individual’s personality on the other” [27].

Aiming to quantify differences between national cultures, Hofstede introduced a set of originally four dimensions, which has since been extended to six dimensions [27].

Figure 2 shows the values of the Japanese, German, and, for comparison, US national culture on Hofstede’s cultural dimensions. In this visualization it becomes clear immediately that according to Hofstede’s system, Japanese culture has greater similarities with German than with US culture, as the respective values are closer to the German ones for five out of six dimensions.

When comparing the Japanese and German values, one can see that the differences on the long term orientation and indulgence dimensions are negligible. Moderate differences exist for power distance and individualism. More considerable differences are only evident in the masculinity and uncertainty avoidance dimensions.

Following is a short description of the different dimensions. Unless stated otherwise, all definitions are quoted from Hofstede's book "Cultures and Organizations: Software of the mind" [27]. The focus is on dimensions where greater differences exist, i.e. power distance, individualism, masculinity, and uncertainty avoidance.

a) Power Distance (power distance index, PDI)

Hofstede defines power distance as "the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally".

While in international comparison Japan is in the mid-range of power distance, its score is considerably higher than Germany's. For a low power distance culture like Germany, the characteristics that Hofstede lists include organizations having a flat hierarchy and that subordinates "expect to be consulted before a decision is made that affects their work, but (…) accept that the boss is the one who finally decides". For high power cultures, typical characteristics include tall hierarchies and that "subordinates expect to be told what to do".

Smith et al [28] found a positive correlation between PDI and the degree to which managers rely on superiors and formal rules rather than their own experience and subordinates.

b) Individualism (IDV)

Hofstede defines individualism and its opposite, collectivism, in the following way:

- "Individualism stands for a society in which the ties between individuals are loose: everyone is expected to look after him- or herself and his or her immediate family only."

- "Collectivism stands for a society in which people from birth onward are integrated into strong, cohesive in-groups, which throughout people's lives continue to protect them in exchange for unquestioning loyalty."

Germany is an individualistic culture. Japan is on the collectivistic side of the spectrum, although it is only moderately collectivistic in international comparison. One should note that Hofstede distinguishes collectivism in different contexts. A culture may be collectivistic in one area of life, but not in another. In modern Japan, people tend to be collectivistic at their work place rather than in their family.

c) Masculinity (MAS)

This poles of this dimension are called "masculinity" and femininity".

- "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."
- "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."

Masculinity is where Hofstede's dimensions show the biggest gap between Japanese and German culture. The more feminine German culture puts higher value on work-life balance, whereas the Japanese culture prioritizes achievement at work (cf. chapter 4.2.6).

d) Uncertainty Avoidance (UAI)

Hofstede defines uncertainty avoidance as "the extent to which the members of a culture feel threatened by ambiguous or unknown situations".

Uncertainty avoidance is the dimension where the second-highest difference between German and Japanese culture is found.

e) Long-term Orientation (LTO)

There are two poles, "long-term orientation" and "short-term orientation".

- "Long-term orientation stands for the fostering of pragmatic virtues oriented toward future rewards, in particular perseverance, thrift, and adapting to changing circumstances."
- "Short-term orientation stands for the fostering of virtues related to the past and present, such as national pride, respect for tradition, preservation of face, and fulfilling social obligations."

Both Japan and Germany score extremely high on the long-term orientation dimension; their values are almost the same.

f) Indulgence (indulgence versus restraint, IVR)

The two poles of this dimension are "indulgence" and "restraint", which Hofstede describes in the following way.

- "Indulgence stands for a society that allows relatively free gratification of basic and natural human desires 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."

Japan's and Germany's score on this dimension is almost identical.

2.2 Global Software Development

It has already been mentioned that a number of papers exist on the influence of culture on Global Software Development. Most of them (e.g. [8]–[10], [13], [16], [29]) are based on the research of Geert Hofstede (cf. section 2.1). The authors of the mentioned papers relate difficulties in GSD which they identified in their research to differences in the ranking of the respective countries on these dimensions.

A number of research papers deals with the impact of culture on software development. Some consider effects on software development as a whole, e.g. [2], [7], [8], [12], [13], and others on specific development activities ([16], [20], [30]). Table 1 summarizes the latter in order to illustrate some consequences of cultural differences that are specific to software development.

2.3 Case Study by Brannen and Salk

In [31], Brannen and Salk present a study on cultural negotiation in a German-Japanese joint venture, a paper mill in Germany. While this case is not related to IT, it is relevant in so far as it indicates fields in which cross-cultural issues between Japanese and German team members are likely to arise. The authors identify seven major problem areas in their study: decision making (due to low decision making power of the co-located Japanese managers), concept of work (different perceptions about boundaries between work and private life), job-role perception (Germans feeling responsible for a more limited area compared to Japanese), production-sales conflict (Japanese being more market oriented), language, quality (higher quality expectations of the Japanese), and group vs. individual (more independent behavior of Germans). Some of these issues may also influence

present-day collaborations in the IT business. Therefore they formed one of the bases for interview questions used in this research (cf. Methodology).

TABLE 1 CULTURAL INFLUENCES ON GLOBAL SOFTWARE DEVELOPMENT ACTIVITIES

Software development activity	***Effect of culture***	***Reference***
Requirements Analysis	• "(D)ifferences in national culture often lead to requirements to be meaningful in the context of certain cultural beliefs and values (e.g. some countries may value stability and ask for a requirement only because it was in previous releases, when other clients favor new features in the system for continuous progress)." • Requirements are "expressed using diverse terminologies and level of detail" • Reaching a common understanding of requirements is affected by cultural diversity	[20], [30]
Architectural Design	• The Japanese teams in the study did more design up-front compared to the U.S. teams. The author relates this to a higher uncertainty avoidance in the Japanese culture compared to the U.S. culture.	[16]
Specification		
Integration	• The author states that the "amount of communication required between remote developers working on an integration area will quickly exceed their ability to communicate with each other" and that some "integration tasks were made more difficult by the fact that the module boundaries were aligned with the cultural boundaries". This indicates that cross-cultural issues are exacerbated during integration.	[16]
Testing	• The Indian developers in the study "seemed to fix each others bugs even though they were not assigned to do so", while the "American team tended to only work on their assigned bugs without voluntarily fixing the bugs assigned to others". The author relates this to high collectivism in the Indian culture as opposed to high individualism in the American culture.	[16]

TABLE 2 SOFTWARE INDUSTRY CHARACTERISTICS BASED ON [32], [33], [34]

Japanese software industry	***German software industry***
Competitive game software industry	Competitive business software industry
Mostly development of embedded and highly customized software (apart from game software)	4th biggest provider of IT and software services worldwide; major provider of "standard software"
IT industry shaped by higher appreciation for hardware compared to software	80% of software engineers working in secondary sectors such as manufacturing
High quality and reliability of produced software	
Keiretsu structures; hierarchical relationships between client and software developer	

2.4 Research on the Japanese and German Software Industries

When investigating any kind of system, one needs to pay close attention to the context in which the system is situated. The Japanese-German collaborations investigated in this research take place in the context of IT, an essential part of which is software. As past events still influence our actions today—a concept called path-dependency—the history and current state of software and the software industries in Japan and Germany demand attention. In [32], Strambach and Storz compare the historical developments of the Japanese and German software industries. On this basis as well as [33] and [34], Table 2 summarizes some of the respective industry characteristics.

Leimbach [35] points out that the focus of Germany's software industry is on enterprise software and services for enterprises.

Cole and Nakata [36] have described software as the weakness of the Japanese IT sector, quoting especially the traditional focus on and appreciation for hardware as a reason. Representative for this hardware-centricity is "Monozukuri" (lit. "making things"), a term "which came to refer to Japan's special ability and practices in building high-

quality, continually improving (aiming for perfection) precision hardware products" and "was elevated to management dogma and a national strategy" [36]. The authors further cite "excessive customization" as characteristic of the Japanese software industry.

Matsubara [37] describes the Japanese software industry to be structured as a hierarchy with several tiers and large-scale companies at the top. For software development, smaller and smaller subsystems are subcontracted to companies in the lower tiers.

3. METHODOLOGY

This chapter describes the research methodology. The first section gives an overview of the methodology, the second gives details on the web survey that was conducted for validation.

3.1 Methodology Overview

The core of this research is an exploratory survey of professionals who are or have been part of Japanese-German collaborations in the IT business. The survey was implemented through a number of semi-structured interviews, mostly between one and two hours in length. Some interviews were done in person in Japan and Germany, others via phone or video chat. The language used was English for Japanese interviewees and German for German interviewees, but all questions were formulated in English. The questions were based on a review of existing literature on cultural differences, Global Software Development, and characteristics and history of the IT industries in Japan and Germany. The majority of questions were open. Many covered pre-defined areas (e.g. decision-making), others were completely open (e.g. "What were the biggest challenges you faced when working with Germans?"). The semi-structured format allowed to add or change questions based on interviewees' background and responses in the course of an interviews. In addition, questions for later interviews were extended and modified based on earlier interviews, although they remained largely identical after some initial interviews. All interviews were recorded, summarized, and analyzed for commonalities and differences.

Table 3 lists the interviewees, the company they work for, their position, nationality, and the country of the branch where they are employed. Table 4 lists the respective companies with the location of their headquarters. For reasons of confidentiality all names

of people and companies have been anonymized. Interviewees are named I1, I2, etc., and companies are named C1, C2, etc.

The aim of the interviews was to identify typical challenges that occur in Japanese-German collaborations in the IT industry. Most of them focused on differences and difficulties, but some questions about perceived similarities and advantages of collaborating with Japanese/Germans were included as well.

The interviewees represented a variety of backgrounds and were thus able to provide a range of different viewpoints. Both Japanese and German nationals were interviewed. They had different positions, such as IT consultant, salesman, IT architect, software developer, researcher, or manager. Some of them worked in SME and others in large corporations, some of which were headquartered in Japan, some in Germany, and others in the US. Interviewees' experiences included collaborations between Japanese and German employees belonging to the same company (co-located or distributed across different subsidiaries) as well as employees of different companies that were in a business relationship, e.g. as client and supplier.

Interview findings are put in relation with existing research to corroborate findings. Based on the challenges identified, I derive possible ways to facilitate Japanese-German collaborations.

A questionnaire-based web-survey (using the Qualtrics platform) was used for further validation of findings and to find out which methods for improving Japanese-German collaborations are seen as useful by practitioners.

Characteristics of Japanese-German collaborations are identified using a combination of economic statistics and existing research on the Japanese and German IT industries and general economic conditions.

TABLE 3 INTERVIEWEES

Interviewee	*Company*	*Position*	*Nationality*	*Location of employment*
I1	C1	Executive	Japanese	Japan
I2	C1	IT Architect, Sales	German	Germany
I3	C1	Client Technical Director	German	Germany
I4	C1	Associate Partner, Consultant	German	Germany
I5	C2	Consultant	German	Japan
I6	C3	Senior Manager Sales	German	Germany
I7	C4	Vice President International Sales	German	Japan
I8	C5	General Manager, founder	German	Japan
I9	C6	Managing Director	Japanese	Japan
I10	C1	Software engineer, R&D Manager	Japanese	Japan
I11	C7	Technical Coordinator	Japanese	Germany
I12	C8, C9	Engineer	Japanese	Japan

TABLE 4 COMPANIES OF INTERVIEWEES

Company	*Headquarter*
C1	USA
C2	Germany
C3	Japan
C4	Germany
C5	Japan
C6	Germany
C7	Japan
C8	Japan
C9	Japan

3.2 Web Survey (Validation)

As mentioned in the previous section, I used a Qualtrics web survey for validation of findings. Participants were required to have German or Japanese nationality and experience of collaborating with, respectively, Japanese or Germans. Further, the collaborations they experienced needed to be IT-related. These conditions were checked in the beginning of the survey. 25 valid responses were collected, 17 from Germans and 8 from Japanese.

The survey consisted of a questionnaire. Most of the questions used a Likert scale and asked respondents about the extent to which they agreed or disagreed with a given statement. These statements typically originated from the interviews which were conducted before the web survey. While respondents could also give additional free-text explanations, this was optional. Apart from Likert type questions, a few questions asked respondents to select and order a number of given elements. This was used to find out which challenges of Japanese-German collaboration were perceived as most significant by respondents and which measures they regarded as useful for facilitating collaborations. The complete survey questions can be found in Appendix A.

Figure 3 shows the age structure of questionnaire respondents, with 65% of German and 63% of Japanese respondents being between 35 and 54 years old. Figure 4 shows the time frames of the collaborations they experienced. 13 out of 17 Germans and 7 out of 8 Japanese respondents experienced a collaboration after 2015, i.e. very recently. Figure 5 shows the headquarter locations of the companies which respondents worked for during their collaborations. Most respondents worked for Japanese and German companies, but some also for US or other companies. Figure 6 shows the country in which they worked. 16 out of 17 German respondents experienced working in Japan and 6 out of 8 Japanese

respondents experienced working in Germany. In Figure 7 one can see that almost all respondents had experienced working with Japanese/German partners within their company (16/17 Germans, 6/8 Japanese); further, a slight majority of each group also worked with Japanese/German partners from another company. About half of the participants stated that their collaboration partners were located in the same country. Regarding the roles which respondents inhibited during their collaborations, the biggest groups are project managers, managers, IT consultants, software engineers and researchers (see Figure 8).

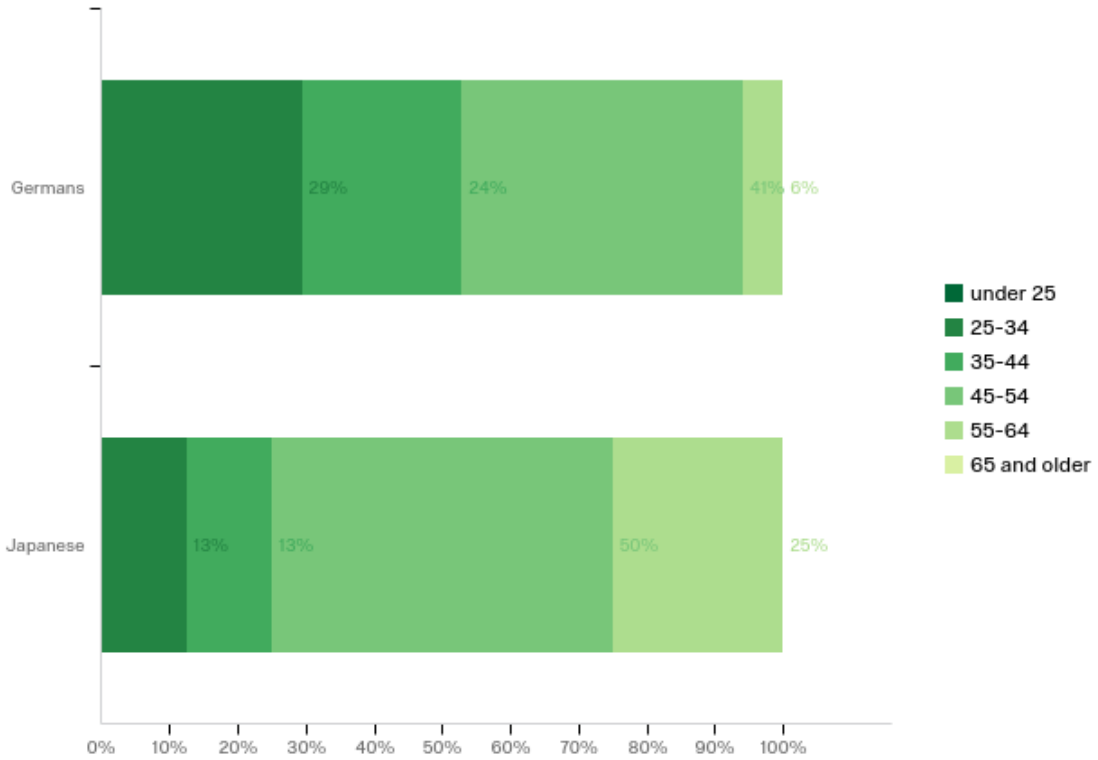

FIGURE 3 AGE OF GERMAN AND JAPANESE QUESTIONNAIRE RESPONDENTS (DIAGRAM CREATED IN QUALTRICS)

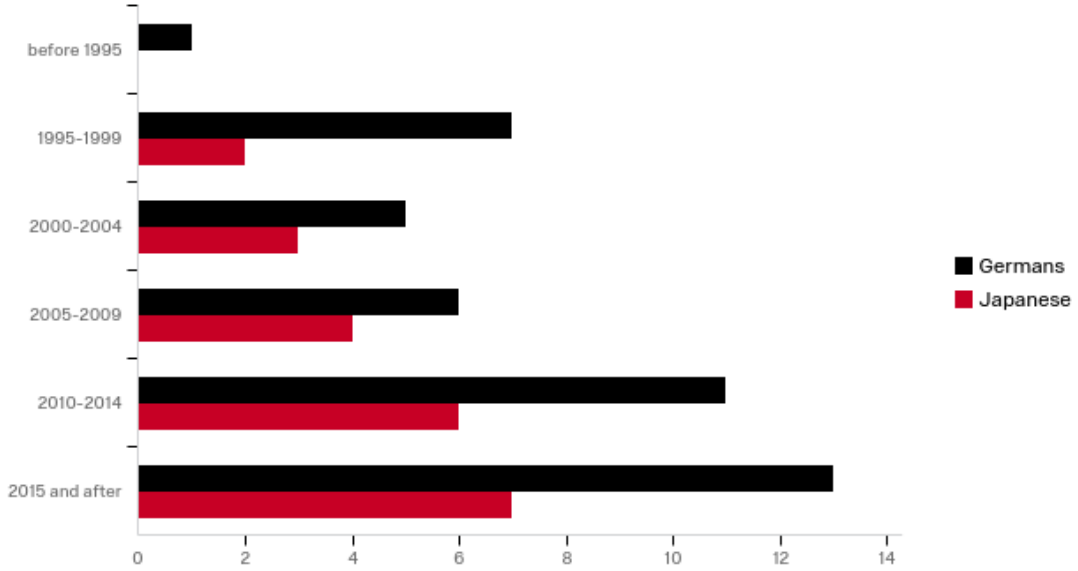

FIGURE 4 TIME FRAMES IN WHICH QUESTIONNAIRE RESPONDENTS EXPERIENCED COLLABORATIONS (DIAGRAM CREATED IN QUALTRICS; X AXIS REPRESENTS NUMBER OF RESPECTIVE RESPONSES FROM GERMAN/JAPANESE RESPONDENTS)

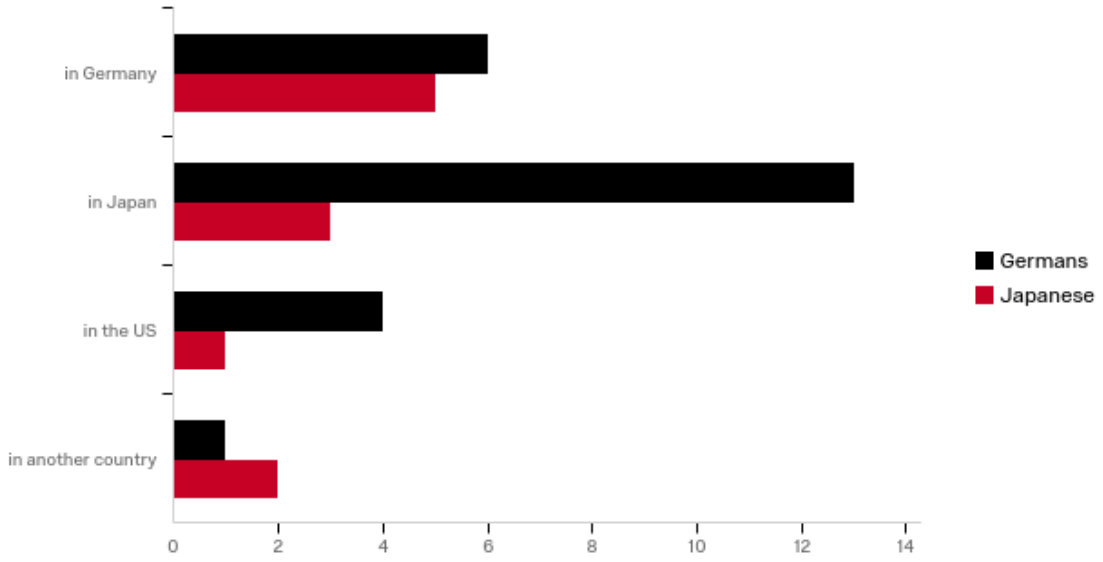

FIGURE 5 LOCATION OF COMPANY HEADQUARTERS OF QUESTIONNAIRE RESPONDENTS DURING THEIR COLLABORATIONS (DIAGRAM CREATED IN QUALTRICS; X AXIS REPRESENTS NUMBER OF RESPECTIVE RESPONSES FROM GERMAN/JAPANESE RESPONDENTS)

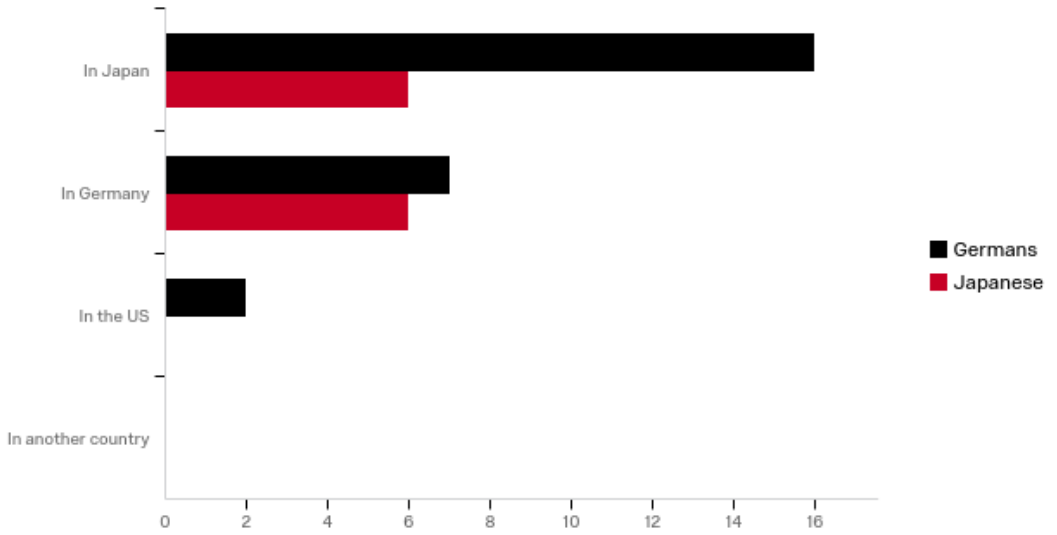

FIGURE 6 WORK LOCATION OF QUESTIONNAIRE RESPONDENTS DURING THEIR COLLABORATIONS (DIAGRAM CREATED IN QUALTRICS; X AXIS REPRESENTS NUMBER OF RESPECTIVE RESPONSES FROM GERMAN/JAPANESE RESPONDENTS)

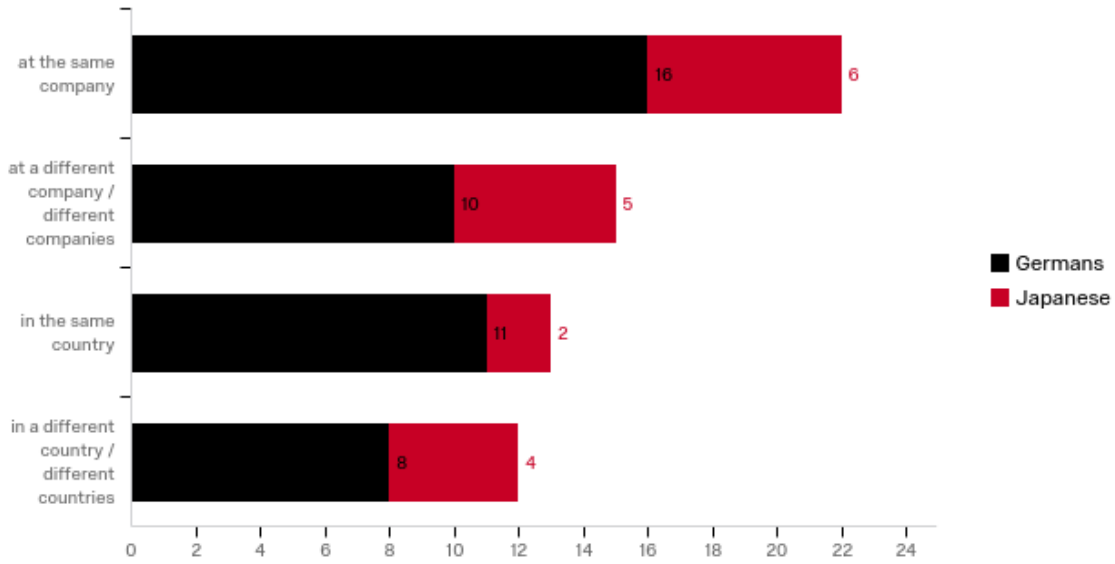

FIGURE 7 WORK LOCATION OF QUESTIONNAIRE RESPONDENTS' COLLABORATION PARTNERS (DIAGRAM CREATED IN QUALTRICS; X AXIS REPRESENTS NUMBER OF RESPECTIVE RESPONSES FROM GERMAN/JAPANESE RESPONDENTS)

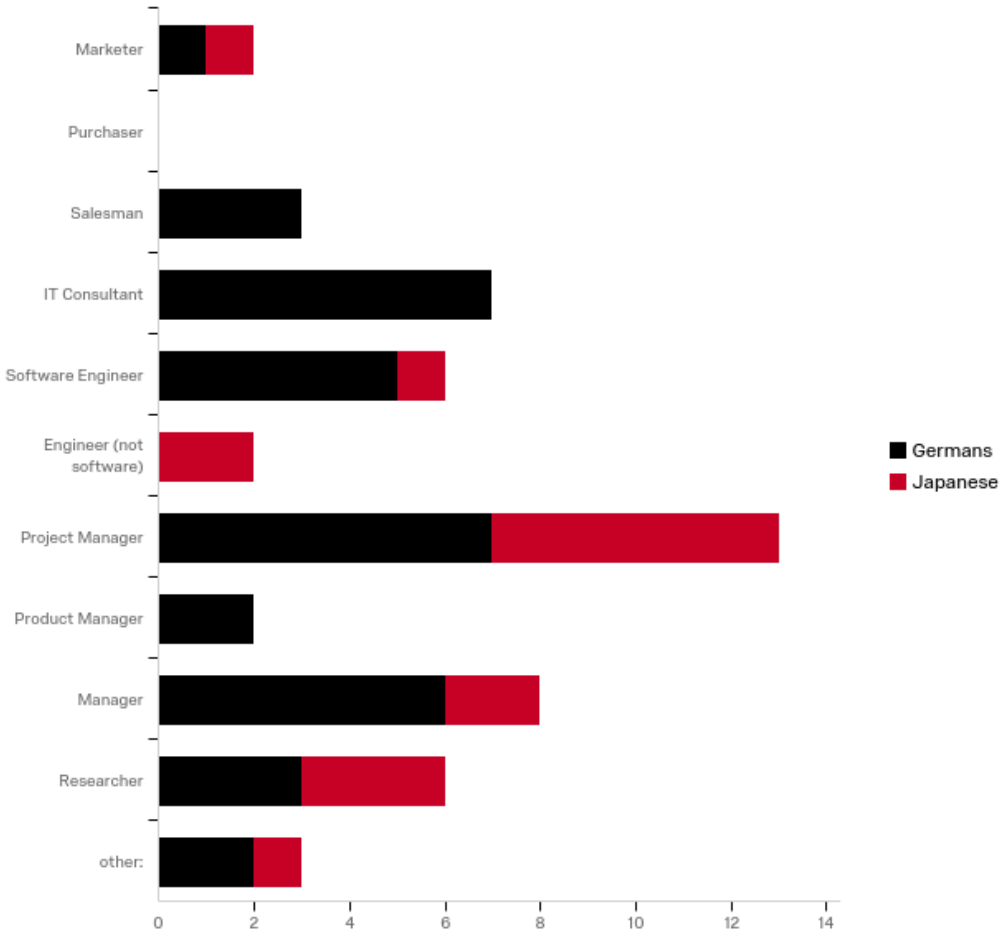

FIGURE 8 ROLES OF QUESTIONNAIRE RESPONDENTS DURING THEIR COLLABORATIONS (DIAGRAM CREATED IN QUALTRICS; X AXIS REPRESENTS NUMBER OF RESPECTIVE RESPONSES FROM GERMAN/JAPANESE RESPONDENTS)

4. FINDINGS

This chapter explains the research findings. It is divided into three parts. The first part is about characteristics of the type of collaboration investigated in this thesis. The second is about the typical challenges which Japanese and Germans experience when working together in the IT business. The third part explains perceived cultural similarities of Japanese and Germans.

4.1 Characteristics of Japanese-German collaborations in the IT business

This chapter explains characteristics of collaborations between Japanese and Germans in the IT business. This includes a consideration of the broader, especially economic, context in which these collaborations take place, and the effects of this context on them.

4.1.1 Economic Context

This chapter outlines the economic context in which collaborations between Japanese and Germans take place.

a) Similarity of General Economic Conditions

Japan and Germany show similarities with regards to basic economic and demographic indicators, as can be seen from Table 5 (data from [26]). Measured in GDP, Japan and Germany are home to the third- and fourth-largest economy worldwide, respectively, and rank fourth and third for exports. While Japan's population is roughly 57% bigger than Germany's, the average age is almost the same and, at 46.9 and 46.8 years respectively, shows an aging society.

There are also similarities in the industry structure. Japan and Germany have strong manufacturing sectors, which employed over 7 million people in each of the two countries in 2012 [38], and are known for high-quality products. Top exports in both countries

include diverse types of vehicles (in particular cars), vehicle parts and machines [39].

TABLE 5 COMPARISON OF BASIC ECONOMIC CONDITIONS. DATA SOURCE: CIA WORLD FACTBOOK (2016) [26]

	Japan	**Germany**
Population	126,702,133 (98.5% ethnic Japanese)	80,722,792 (91.5% ethnic German)
Urban population	93.5%	75.3%
Median Age	46.9 years	46.8 years
Land area	364 sq km	349 sq km
GDP (purchasing power parity)	$4.932 trillion	$3.979 trillion
Per capita	$38,900	$48,200
Exports	$641.4 billion	$1.283 trillion
Imports	$629.8 billion	$987.6 billion

b) Information and Communication Sector

Chapter 2.4 already described characteristics of the Japanese and German software industry. The following expands on this with some key statistics on the broader ICT sectors of Japan and Germany.

According to data of the OECD, in 2012 the information and communication sector employed 1,066,730 people in Germany and 1,424,290 in Japan [38].

Figure 9 shows the top ten exporters of ICT goods in 2014 according to the OECD [40], [41]. Both Japan and Germany are among them with a world export market share of 4%, respectively.

In 2014, Germany was the 4th biggest exporter (25,309.3 USD) and the 3rd biggest importer (20,578.5 USD) of information and communication services worldwide [39]. Japan was the 6th biggest importer (9,377.5m USD) [39].

c) SME

Both Germany and Japan have a high number of small and medium-sized companies (SME). One difference is a higher export-orientation of German SME: According to Namba [42], only 2.8% of Japan's SME engage in direct exports, as opposed to 20% for German SME (with SME defined as companies with less than 250 employees). In his study on German "hidden champions" and Japanese "global niche leaders", Namba also found that the German SME in his study globalized proactively, whereas the Japanese SME globalized "in response to changes in the external environment" [42].

d) Keiretsu and their Effect on Client-Supplier Relationships

Japan's economy is characterized by tight networks of affiliated companies known as "keiretsu". The ties between the keiretsu companies "are complex, involving financial ties, personnel exchanges, buyer-supplier relationships, and historical ties" [43].

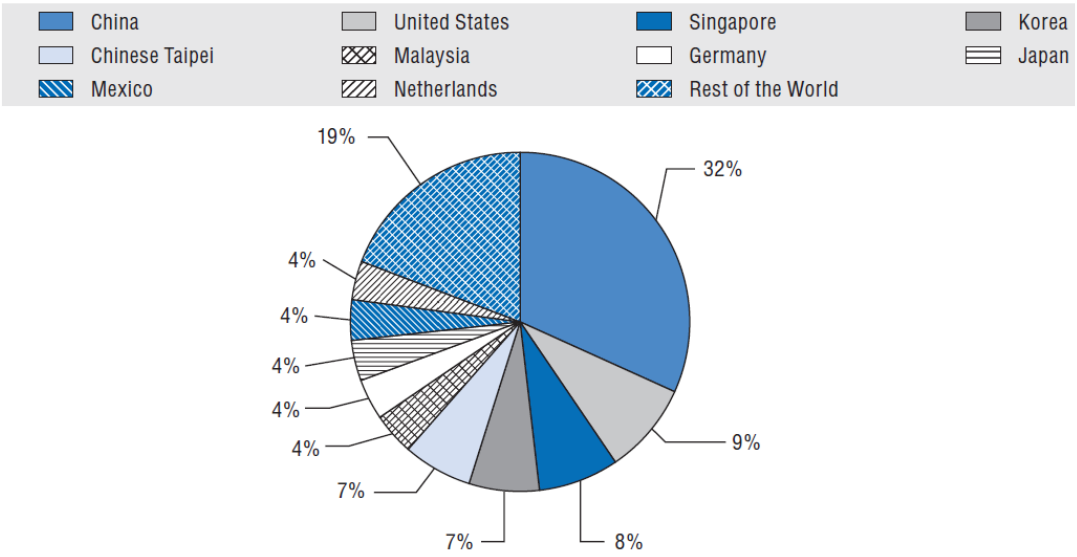

FIGURE 9 TOP TEN EXPORTERS OF ICT GOODS, 2013. DATA SOURCE: OECD [40]. DIAGRAM FROM [41].

Interviewees' statements indicate that given this tight connection, the relationship and respective areas of responsibility between a client company and its suppliers are often vaguely defined. This has consequences on the way how client and suppliers interact. Given the common incentives with and dependence on the company which is at the center of the Keiretsu, suppliers are strongly incentivized to follow any request from this company. The consequence is a high level of customization and low level of standardization of the suppliers' products.

e) Bilateral Trade Between Japan and Germany

IT goods and services are often delivered to non-IT clients. The typical business context of these clients is thus part of the collaboration context in the IT business. Exports from Japan to Germany indicate the typical business context for Japanese subsidiaries in Germany (and vice versa). Therefore the bilateral trade between the two countries deserves attention.

Exports from Japan to Germany and from Germany to Japan are visualized in Figure 10 and Figure 11 (data from [39]). Despite Germany's total exports being almost twice as high as Japan's total exports when comparing global trade (cf. Table 5), in fact Japan's exports to Germany were higher than its imports from Germany in 2015. The four categories of goods with the biggest share of exports in both cases are transportation goods (in particular cars), chemical products, machines, and instruments. Germany exports a higher amount of cars and chemical goods in comparison, Japan a higher amount of machines (51% of total exports to Germany).

4.1.2 Organizational Context

One interviewee, an executive of the Japanese subsidiary of a major American IT company, pointed out that large companies typically organize their global activities into different regions (e.g. Europe or Asia). This usually makes the German and Japanese branches part of different regions. In this case there is little collaboration between the two on a daily basis, unless the company headquarters are either in Japan or Germany. An exception is the case that the German and Japanese subsidiary both focus on the same technological area and therefore collaborate to some degree. For these reasons it seems likely that collaborations between Germans and Japanese within non-Japanese-non-

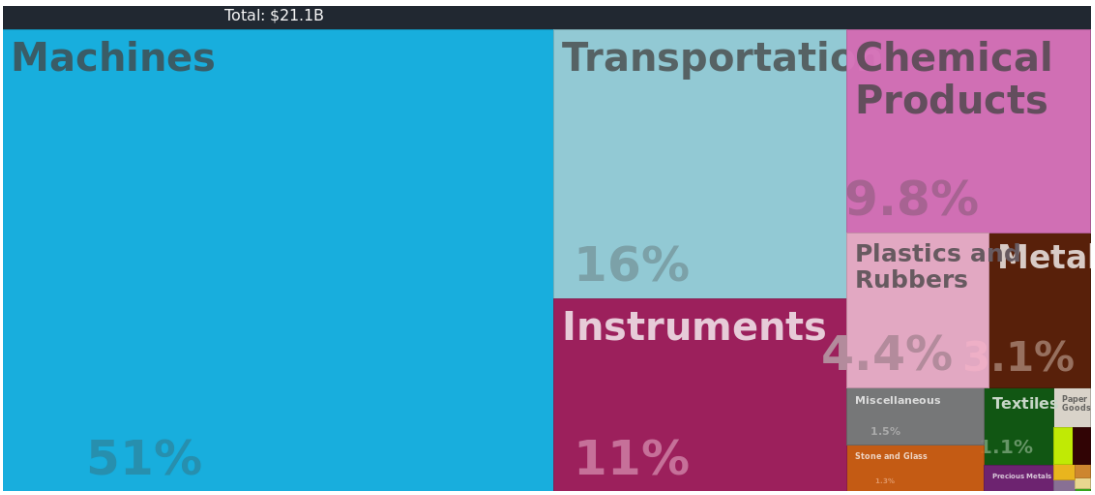

FIGURE 10 EXPORTS FROM JAPAN TO GERMANY IN 2015. DATA SOURCE: UN COMTRADE [39]. VISUALIZATION FROM ATLAS.MEDIA.MIT.EDU.

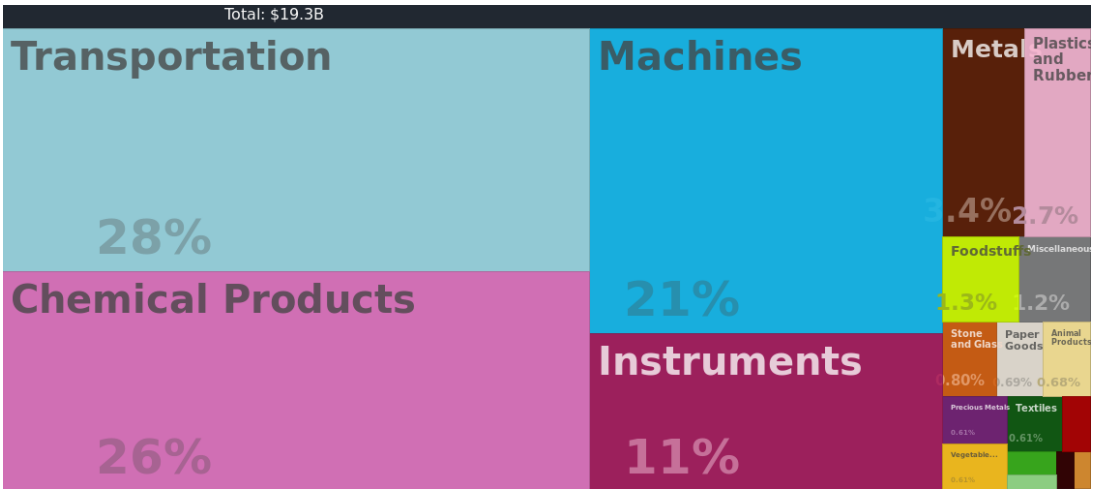

FIGURE 11 EXPORTS FROM GERMANY TO JAPAN IN 2015. DATA SOURCE: UN COMTRADE [39]. VISUALIZATION FROM ATLAS.MEDIA.MIT.EDU.

German companies generally just take place in the context of specific business cases (rather than routine operations).

4.1.3 Collaboration Characteristics in the Software Business

Chapter 2.4 summarized research on the Japanese and German software industry and referred in particular to Strambach and Storz [32]. A noteworthy aspect is the high degree of customization of software that is used in Japan's companies. This contrasts with the highly standardized business software which is the strength of Germany's software companies. Also, putting aside customized software, the strength of Japan's software companies lies in B2C, whereas for German companies [35] it is B2B.

Figure 12 shows the trade in telecommunication and commuter services between Germany and Japan from 2013 to 2015 according to data from the OECD [44]. It shows that Germany's exports in software and other computer services far outweigh what its imports from Japan.

These facts indicate that for a Japanese-German client-supplier relationship in the field of software it is very likely that the Japanese company will be in the role of the client and the German company in the role of the supplier.

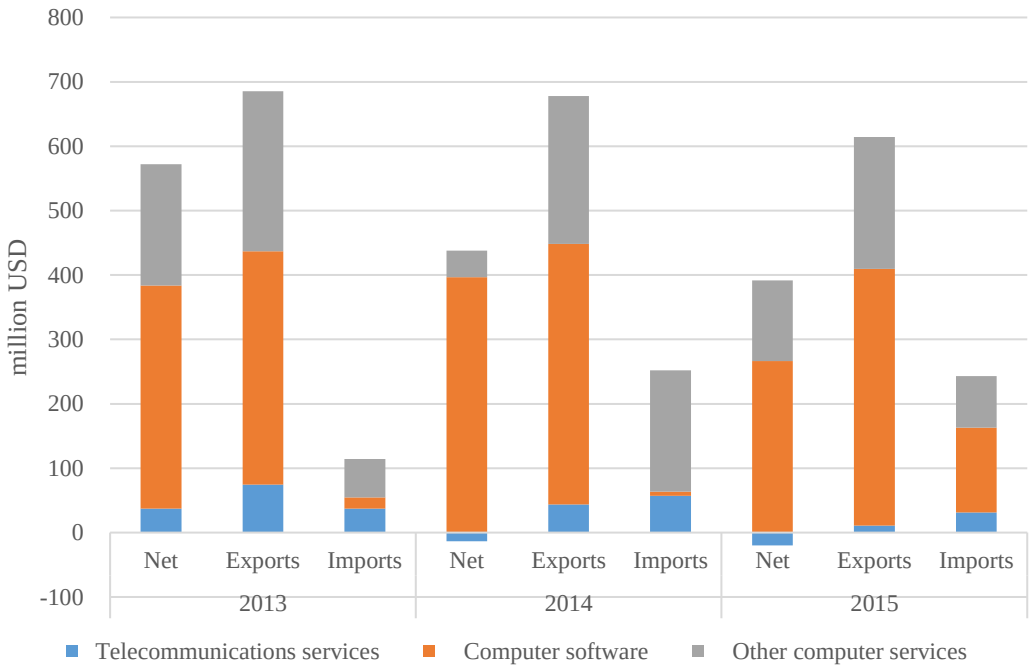

FIGURE 12 TRADE IN TELECOMMUNICATIONS AND COMPUTER SERVICES (EXPORTS FROM GERMANY TO JAPAN, IMPORTS FROM JAPAN TO GERMANY). DATA SOURCE: OECD [44]

Another characteristic is that given the similar state of economic development in Japan and Germany (cf. section 4.1.1), there is hardly an incentive for Japanese or German companies to outsource software development to the other country for saving labor costs. If outsourcing happens, it is likely in order to leverage people's or companies' expertise.

4.1.4 Time zones

Previous research has identified time differences between different countries as a challenge for global software development [6]. This equally applies to Japanese-German IT collaborations.

Between Germany and Japan, there is a time difference of eight hours in winter and seven hours in summer due to the German daylight saving time.

This means that 9 am in Germany is 5 pm in Japan. Assuming work hours from 9 am to 5 am, in theory this would leave no time window (or only one hour in summer) for synchronous communication, i.e. via video conferences etc.

However, the time window is in fact bigger than this superficial consideration suggests. Germans tend to start work earlier than 9 am, often around 8 am, and Japanese tend to start later, often around 10 am. Adding to this the long hours of overtime which are common in many Japanese companies, this opens up a time window for synchronous communication which covers most of the German morning (which corresponds to the Japanese afternoon and early evening).

Chapter 4.2.9 describes difficulties connected to time difference and ways to cope with it.

4.2 Challenges of Japanese-German collaborations

This section describes the research findings related to challenges of collaborations between Japanese and Germans in the IT business.

4.2.1 Ranking of Collaboration Challenges

In the web questionnaire, German respondents were asked to choose the main challenges for Germans working with Japanese in the IT business from a list based on their experience; Japanese respondents were asked the same question from their perspective. The list of presented options (the full list can be found in Appendix A) was based on the interviews which had been conducted at an earlier stage. Based on this question, Table 6 shows the main collaboration challenges based on the number of times the respective option was selected by respondents. Each respondent had several votes. Included are those options which received at least 5% of the total votes given by, respectively, German and

TABLE 6 MAIN CHALLENGES IN JAPANESE-GERMAN COLLABORATIONS IN THE IT BUSINESS ACCORDING TO A) GERMAN QUESTIONNAIRE RESPONDENTS AND B) JAPANESE QUESTIONNAIRE RESPONDENTS

A)

Challenge	*Percentage of total votes by German respondents*
Language barrier	12%
Speed of decision-making	9%
Decision-making	9%
Differences in communication behavior: Body language, directness, etc.	9%
Unclear requirements	7%
Establishing trust (on an organizational level)	7%
Establishing trust (on a personal level)	6%

B)

Challenge	*Percentage of total votes by Japanese respondents*
Differences in communication behavior: Preference for vertical/horizontal communication	11%
Unclear individual responsibilities	11%
Language barrier	9%
Overall lack of cultural understanding	9%
Speed of decision-making	7%
Speed of communication	7%
Different client-supplier relationship in Japan/Germany	7%
Different expectations regarding work-life balance	7%

Japanese respondents. The following sections in this chapter will give details about all of the identified challenges.

4.2.2 Language

The biggest collaboration challenge, consistently mentioned by both German and Japanese interviewees and regarded as a main challenge by 64% of all questionnaire respondents, is the language barrier.

Germans and Japanese usually communicate in English. Only one German and one Japanese questionnaire respondent stated being able to speak business level Japanese/German, although 22 out of the total 25 respondents had worked in the respective

other country. Still, 88% of the German and 50% of the Japanese respondents stated having at least basic knowledge of their partners' language.

As neither Germans nor Japanese are native speakers of English, communication often suffers from insufficient English skills. Having said that, Germans tend to be more fluent in English than Japanese. In the well-known "Test of English for International Communication" (TOEIC), the mean score of German test takers is 789 out of a maximum of 990 points, compared to 516 points for Japanese test-takers [45]. This is unsurprising when considering that the German and English language belong to the same language family, arguably making English easier to learn for Germans.

Interviewees generally found the language barrier higher in oral than in written communication, for the reason that language education in Japan gives little regard to oral communication, but rather reading and writing skills.

The language barrier is an important challenge, since it does not only affect the exchange of information between collaboration partners, but impacts all areas which depend on communication, such as the ease of establishing trust and decision-making. These in themselves are main challenges to collaborations between Germans and Japanese. In particular, Japanese interviewees mentioned the establishment of trust becoming much easier with increasing English skills during their collaborations. Germans also found overall collaboration difficulties to decrease when their Japanese partner had good English skills.

One German interviewee was the founder of a company in Japan which focuses on sales and support for a German software product in Japan. He mentioned software localization, in particular translation from English into Japanese, as an essential factor for the success of his business in Japan. He experienced Japanese clients as being highly

reluctant to use software products which were not available in their native language and contrasted this with a general willingness of German clients to use English-language versions.

4.2.3 Decision-making and Clarity of Individual Responsibilities

German interviewees consistently reported that they found Japanese decision-making very slow. Japanese interviewees shared the view that Germans tended to make decisions more quickly. Questionnaire results support this: When asked to rate the amount of time generally spent on decision-making by Japanese, 63% of German respondents chose the option “too much” and 31% “a little too much”. 88% of Japanese respondents who rated decision-making by Germans found the amount of time spent on decisions as “adequate”.

The reasons for the different speed of decision-making lie in a number of differences in the way how decisions are typically made in Japan and Germany as well as related factors such as the definition of individual responsibilities (or lack thereof) and ways of distributing work. These differences can be summarized in the following list, the first part representing the German and the second part the Japanese approach, respectively:

- Decision by individual or by collective
- Consensus seen as optional or required
- Individual areas of responsibility (and authority) clearly separated or overlapping
- Delegation of responsibility for outcomes or delegation of tasks
- Efficiency-driven or perfectionist

These points will be explained in more detail in the following paragraphs. It should be noted, however, that this is a description of decision-making archetypes – not all of the above characteristics are necessarily found in all German or Japanese companies,

respectively. In particular, decision-making is strongly influenced by corporate culture and the style of decision-making employed in the parent company. For example, interviewees working in the Japanese subsidiary of an American IT company said decisions were made strictly top-down, following the model of their American headquarters, while this was not common in domestic Japanese companies. A German interviewee employed at a German software company mentioned superiors at this company usually trying to achieve agreement with their employees and decision-making thus being close to the "consensus-oriented culture in Japan".

The basis for German decision-making is a clear definition and hence separation of individual responsibilities (and authorities), typically via a job description. If a decision falls into the area of responsibility of an individual employee, this employee can make the decision on his/her own. This does not withstand the necessity to coordinate decisions with other employees to a greater or lesser extent, depending on the specific case. Most managers also tend to delegate the responsibility for outcomes to employees rather than giving detailed instructions. Employees are expected to achieve the outcome in an independent manner. Consensus is not seen as absolutely necessary and disagreements among subordinates are often resolved by top-down managerial decisions.

Detailed job descriptions have traditionally been uncommon in Japan. Managers typically assign tasks to employees on a daily, ad-hoc basis, which arguably takes away the need for pre-defined individual areas of responsibility (interestingly, all Japanese interviewees used the word "vague" at least once when describing decision-making or individual responsibilities in a Japanese context). A consequence of this is that employees' responsibilities are not clearly separated, i.e. they overlap. In coherence with that, decisions tend to be made by groups and in consensus—individuals, at least on lower

levels of the hierarchy, often do not have the authority to make decisions on their own. This does not withstand a high respect for hierarchy (compared to Germany, as indicated by a higher power distance in Hofstede's cultural dimensions), as less experienced or lower ranking employees tend to follow their superior's opinion. They also tend to expect more detailed instructions from their superiors compared to German employees.

The consensus can be achieved via the so-called Ringiseido, which has been described in previous research [46]. In essence, a lower-ranking manager creates a document detailing the decision to be made along with a recommendation. The document is circulated among other affected managers and possibly handed to upper management later on. For a decision to be accepted, each person in the chain needs to approve. In case of rejection, the document may be handed back with suggestions for change. Decision-making in this way requires a considerable amount of time. It is consistent with the lower level of individualism in Japanese culture according to Hofstede.

Another difference is the amount of effort invested into considering influencing factors and possible consequences of decisions. The German approach could be described as "efficiency-driven": Germans usually try to identify and consider the most important factors, but accept some remaining uncertainty when investing more time and effort does not seem to be justified by potential benefits. By contrast, Japanese typically strive to eliminate uncertainty by collecting more data and spending more time on decisions. The difference could be described as "efficiency-driven" and "perfectionist" approaches, with the latter requiring more time. The difference reflects the higher uncertainty avoidance in Japanese culture compared to German culture according to Hofstede.

The accounts of two interviewees illustrate the two approaches and how they are perceived by Germans and Japanese, respectively. A German interviewee said about a

software project that he worked on: “The Japanese wanted to discuss everything in great detail already […] my impression was that they proceeded to detailed planning very early […] despite some things not being clear yet at all and that therefore a lot of time was being wasted”. He contrasted this with Germans usually doing “general planning” before going on to “detailed planning” in a later stage. A Japanese interviewee said: “(T)his is my gut feeling, but, you know, people in Germany […] tend to make some very quick decisions. It’s totally different from Japanese. But also they are […] smart enough to consider the impact […] already before making a decision”. While it could have been expected that Japanese interviewees see German decision-making as hastened, this was not the case. They generally shared the view that Germans considered the important points in decisions and did not express discontent about the faster speed of decision-making, although they themselves might usually invest more time. This is consistent with the questionnaire results, where 88% of Japanese respondents described the time spent on decision-making by Germans as adequate.

4.2.4 Communication Behavior

There are a number of differences in communication behavior which some interviewees described as challenging. For example, differences in body language can cause misunderstandings in some cases.

More importantly, there is a big difference in how directly Japanese and Germans express their own thoughts, opinions, and, in particular, disagreement. In German culture open discussions are common, disagreement is expressed directly and problems are openly addressed. Japanese culture favors more indirect and context-dependent communication behavior which avoids open conflict or disagreement. The difference is especially big for the communication between superior and subordinate. 47% of questionnaire respondents

agree with the statement that German employees often openly disagree with their superior (35% neutral responses, 17% disagreement). This contrasts with only 8% agreeing and 84% disagreeing or strongly disagreeing with the same statement for Japanese employees (8% neutral responses).

German interviewees described their Japanese partners generally as very polite and indirect, Japanese interviewees described Germans as straightforward and to the point. These differences have a positive side; in fact, many interviewees expressed their appreciation of, respectively, the Japanese politeness and the German straightforwardness. However, difficulties are also common.

Noteworthy is the concept of “Tatemae” and “Honne” in Japanese culture, which does not have an equivalent in German culture. Dependent on the context, such as the relationship between the communication partners or the location (e.g. at the work place or at a bar after business hours), there are two modes of communication: Tatemae is a kind of façade which is shown to preserve the feeling of harmony and group cohesion, but does not necessarily reflect the actual thoughts and feelings, Honne. Honne is only expressed selectively. The degree to which Honne is shown is very dependent on the amount of trust that communication partners have to each other. When talking Tatemae, disagreement is very subtly and indirectly expressed and is easy to be missed by people unfamiliar with this concept, as is the case with most Germans.

Several Japanese interviewees made the experience that Germans had difficulties distinguishing Tatemae from Honne in communication; also, 63% of Japanese questionnaire respondents agreed or strongly agreed to have experienced Germans not being able to distinguish the two (only 13% disagreed). This can result in misunderstandings. Some German interviewees said they had experienced situations in

which they assumed to have an agreement with their Japanese partners, but their partners did not act accordingly, apparently in violation of the agreement. In combination, this makes it seem likely that the German interviewees received a Tatemae reply (and seeming agreement) from their Japanese partners, which they took at face value, while in fact the agreement was not given. 60% of German questionnaire respondents agreed or strongly agreed to have encountered situations where they assumed to have an agreement with their Japanese partners, but they did not act accordingly (next to 20% neutral responses, 20% disagreement); on the other side, 76% of Japanese respondents disagreed or strongly disagreed to have had such a situation with their German partners (next to 12.5% neutral responses, 12.5% agreement). Germans misinterpreting a response by a Japanese partner as agreement (or the Japanese partner not expressing his view clear enough for his German partner to understand) appears to be a typical problem in Japanese-German collaborations.

Another difference concerns the way how communication between employees working in different companies is initiated, e.g. when needing a piece of information. German employees will typically choose horizontal communication and try to initiate a direct contact with the person who they believe to be able to provide the information. On the other side, Japanese employees are usually expected to initiate the communication via their superior, whose consent they require. Communication across hierarchy levels is less common in Japan than in Germany. This is supported by the questionnaire results, with 75% of respondents disagreeing/strongly disagreeing with the statement that employees in Japanese companies communicate freely across hierarchy levels, as compared to only 4% for employees in German companies (46% agreed/strongly agreed in this case, 39% of responses were neutral).

German interviewees' general perception was that they needed to pay more attention to hierarchy in Japan than in Germany. This is consistent with Hofstede's higher power distance value for Japan compared to Germany. Germans unaware of this difference may use horizontal communication right away and risk alienating managers in Japanese organizations.

4.2.5 Establishing Trust

Some interviewees mentioned difficulty to establish trust with their partners. On a personal level, this was often due to the language barrier, which was regarded as the main impediment by both Japanese and German interviewees. Japanese interviewees noted it became easier for them to build trust with increasing English abilities. The importance of good language skills for building trust is also underlined by the fact that 69% of the German and 75% of the Japanese questionnaire respondents agreed or strongly agreed to the statement that it is generally easy for Japanese and Germans to build trust if all of them have good English skills; at the same time, building trust is seen as one of the main challenges (cf. chapter 4.2.1). Developing an understanding of cultural differences was mentioned as another facilitating factor by some German interviewees.

Shared experiences outside of work were also considered to be important for developing trust and especially emphasized by Japanese interviewees. One difference is that in Japan these shared experiences typically take the form of going out to have drinks together after work, which happens much less frequently in Germany. On the other side, Japanese interviewees experienced being invited home by German colleagues, which would happen rarely in Japan.

On the company-level, Germans found it difficult—or at least requiring a long time—to build trust for their company in Japan and, consequently, gain new clients. This was

especially true for SME. One interviewee, vice president of a German SME operating in Japan, expressed it this way: “Our big problem is that we’re not famous enough. We’re not a world brand. We always have to prove ourselves first, we need to give evidence of our trustworthiness, our raison d’être again and again. That is tiring and takes time. Companies like BMW, Lufthansa or Siemens don’t have this problem, but we do”. He and other interviewees described this difficulty to be particularly big in Japan.

They emphasized the importance of demonstrating long-term commitment to the Japanese market as well as providing a high level of service and support in order to gain Japanese clients’ trust. Japanese companies value reliability very highly, which could be attributed to the strong uncertainty avoidance in Japanese culture. One interviewee, who has been running his company in Japan for more than 20 years, also explained that in the past many Western companies had opened a subsidiary in Japan, but closed it down few years later when profits did not meet expectations, often leaving their former Japanese clients without support. This experience had made Japanese companies become careful to start business relationships with foreign companies, unless they had proven their continuing engagement.

4.2.6 Prioritization of Work Life and Private Life

In international comparison, Germany is among the countries with the lowest average of working hours per person. Japan is on the opposite extreme. Figure 13 shows the average hours worked per person per year in different countries according to the OECD [47]. In 2016, employees in Germany worked 1363 hours on average, compared to 1713 hours in Japan.

The reasons are found both in a lower average of hours worked per week, a higher legal minimum of vacation days that employees are entitled to and a higher amount of vacation

actually taken by Germans compared to Japanese (as many Japanese do not take all the vacation days which they are legally allowed to take). This reflects Germany's lower Masculinity value on Hofstede's cultural dimensions, which indicates a higher importance of work-life balance.

Germans are generally used to a higher amount of free time and are less willing to compromise on their private time for work compared to Japanese, i.e. do overtime or take shorter vacations. Their ability to do so is also limited by strict labor regulations in Germany.

This can sometimes lead to some discontent on the side of the Japanese collaboration partners. Two situations need to be distinguished: co-located collaboration and distributed

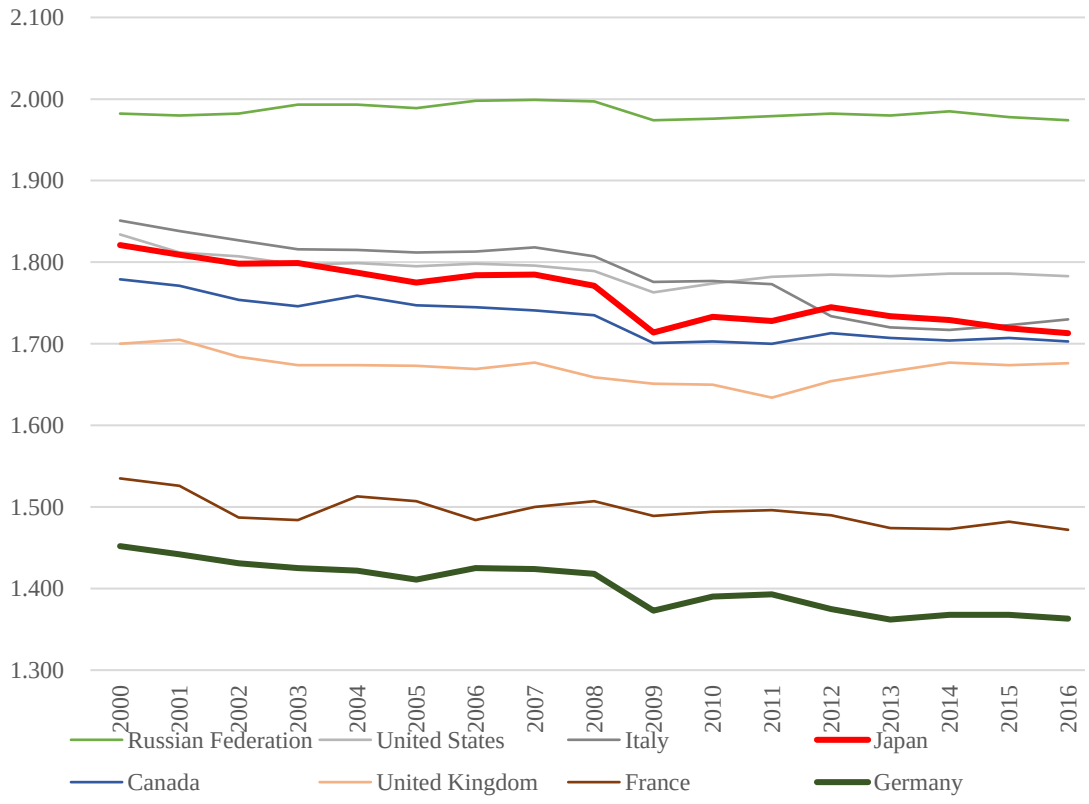

FIGURE 13 AVERAGE ANNUAL HOURS ACTUALLY WORKED PER WORKER (SOURCE: OECD [47])

collaboration across Japan and Germany. In a distributed setting, Germans going home earlier is extremely unlikely to cause problems due to the time difference—when employees go home at 5 pm in Germany, this equals midnight (summer: 11 pm) in Japan. In a co-located setting, there is a difference between partners working together in Japan or Germany. Japanese employees working in Germany hardly get upset about Germans working comparably short hours, as this is the predominant behavior and rather causes jealousy than resentment. In Japan, with few German employees working in a Japanese company (or subsidiary), this can be different. However, most Japanese interviewees accepted Germans going home on time as a "cultural difference".

A bigger issue is the higher amount of vacation taken by Germans. For example, a Japanese interviewee described a "typical situation" in which the manager of a Japanese company got upset about a delayed delivery by a German supplier and was bewildered when it turned out the cause of the delay was that one of the supplier's employees had been on a 2-week vacation and therefore did not reply to messages. Another Japanese interviewee often experienced Japanese colleagues complaining about Germans going on a vacation while they felt they needed to make progress and continued working. This is seen as a quite normal behavior in a German context, but rare in Japan, where employees are more willing to cut back on their vacation for the sake of their company.

Questionnaire respondents were asked the question whether they have witnessed a Japanese colleague or client getting upset about a German being on a holiday or working less hours, respectively, and how often this was the case. While 80% (on holiday) and 69% (working less hours) of German respondents selected "never" or "rarely", these numbers are much lower for Japanese respondents with 38% and 26%. Further, 51% (on holiday) and 38% (working less hours) of the Japanese respondents even stated having experienced

such situations often or very often. This could indicate that indeed the situation of Japanese getting upset about Germans spending less time at work is common, but is not expressed openly in front of the German partners.

4.2.7 Client-supplier Relationship

This section talks about differences and potential conflict areas regarding the relationship between client and supplier or service provider. Note that in the following I will only talk about "suppliers" for the sake of brevity, but in doing so I am referring to both suppliers and service providers.

a) Power Balance

I pointed out in an earlier chapter that Japanese suppliers are often tightly connected to their customers, sometimes as part of Keiretsu.

Statements by both Japanese and German interviewees indicate that the tight client-relationships in Japan go along with a high willingness of the supplier to comply with the client's demands. This tendency is amplified by a very strong customer orientation in Japan. On the flipside, this raises clients' expectations that suppliers will make strong efforts to fulfill their demands without much objection.

The typical client-supplier relationship in Germany is more egalitarian in comparison. In the words of one interviewee, vice president of a German SME: "(A)s a medium-sized company, we are used to meeting big companies, even the largest companies, at eye level", whereas "(i)n Japan […] the relationship between principal and supplier is traditionally like the one between man and dog, that is, it's feudalistic. […] And that's just something you need to know about".

Consequently, when bigger Japanese clients discuss with German suppliers, they can be surprised at the supplier's confident demeanor. From the other perspective, German

suppliers can have difficulties to be taken seriously by Japanese clients and convince them of their perspective.

Questionnaire results support the higher standing of clients in Japan compared to Germany. 73% of respondents see the client in a higher position than the supplier, 18% in a slightly higher position. For Germany, only 24% see the client in a clearly higher position; 43% see him in a slightly higher position (29% see client and supplier as equals).

b) Expectation Mismatch due to Differences in Project Management

One interviewee explained a difference in project management practices in Japan and Germany which can lead to a mismatch in expectations between Japanese clients and German suppliers. Japanese suppliers expect that clients may change or add major requirement even in the implementation phase of an IT project and plan for this by including a buffer. Because of this (as well as a generally higher customer orientation), they generally do not expect additional funds from the client. This is also the client's expectation.

German suppliers, however, tend to agree on a baseline of requirements with the client in the initial phase of a project and see requirements as mostly fixed after this. When clients want to add a requirement which is more than just a minor change, suppliers expect them to provide additional funds for the implementation. While this is basically what German clients expect, it does not match the expectation of Japanese clients. Conflicts can arise when German suppliers demand more money to implement late requirements which Japanese clients assume to be covered in the original budget as a matter of course.

Questionnaire results confirm a higher tendency of German suppliers to demand more money and time in the described situation. Over 90% of respondents agree or strongly agree that German suppliers will likely demand more money (90%) and more time (95%).

This contrasts with the responses for Japanese suppliers, where only 23% agree that the supplier will likely demand more money (next to 36% disagreement, 41% neutral responses) and 41% that the supplier will likely demand more time (next to 27% disagreement, 32% neutral responses).

4.2.8 Customization versus Standardization of Software

It has been explained in a previous chapter that Japanese companies have shown a tendency towards highly customized software in the past and that many German software companies sell highly standardized business software. Statements by Japanese interviewees also indicate a generally higher degree of standardization in German industries.

Interview findings indicate that this results in situations where the Japanese client has expectations which are perceived to be unrealistic by the German software provider and can thus lead to disagreements. 95% of questionnaire respondents agreed or strongly agreed that Japanese business clients expect a high degree of software customization, as compared to 50% for German clients.

Some of the interviewees worked for German companies which offer standardized business software solutions. One of the main difficulties they experienced when doing business with Japanese companies was that these seemed to have little experience with standard software. They mentioned Japanese clients expecting a very high degree of customization, which they were unwilling to provide. Modifying their software too much according to the preferences of a single client would diminish the advantages of this software for other clients, making it harder to sell. Further, all clients would lose the advantages of using standardized solutions. Communicating these advantages to clients, however, presented a challenge and a potential point of contention.

4.2.9 Time Difference

Geographical distance was not described as a noteworthy difficulty due to the existence of advanced software communication and collaboration tools. The eight hours (summer: seven hours) time difference between Japan and Germany, however, was sometimes described as a difficulty by interviewees.

It has been mentioned in the chapter about characteristics of Japanese-German collaboration that the time window for synchronous communication between Japan and Germany is bigger than the eight hour time difference suggests, given Germans' tendency to start work early and the commonly long overtime in Japan.

Having said that, the societal trend in Japan goes towards less overtime, making the available time window smaller. This particularly poses difficulties when frequent synchronous communication is needed, such as in Sales. One German interviewee, a Salesman working for a Japanese company in Germany, mentioned that when he started work 25 years ago he was still able to reach about half of his colleagues in Japan when calling at 2 pm local time, which corresponds to 10 pm in Japan. In contrast, today he would be surprised if anyone answered a call at this time.

Additional difficulties arise when e.g. conference calls include not just Japanese and German participants, but, e.g., Americans (which is a typical scenario given the predominance of US companies in IT). This is often the case for company C1, which is headquartered in the US and has subsidiaries in Japan and Germany. Due to the time differences, calls are typically scheduled at midnight for Japanese employees (8 am PST). A common way to mitigate this difficulty is the introduction of flexible working hours and remote work, with Japanese employees answering calls scheduled late at night from their

home. Japanese interviewees still described the situation as somewhat “unfair”, but accepted it as a natural consequence of the circumstances.

4.3 Perceived Cultural similarities

Most interviewees gave positive statements about collaborating with, respectively, Japanese or Germans, often emphasizing perceived commonalities in culture or work styles. In particular, qualities such as punctuality, reliability, accuracy and discipline were commonly mentioned, as well as a structured way of working. Some interviewees made comparisons to US culture, to which they saw a big difference in that people invested very little time in planning ahead and tended to move to action very quickly.

Ten interviewees whose companies had subsidiaries (or their headquarters) in Germany, Japan, and the US were asked to rate the similarity in organizational culture of the Japanese and German subsidiary as well as the subsidiary they worked for worked for and the US subsidiary. On Hofstede’s cultural dimensions, German culture is closer to Japanese culture on three dimensions and closer to US culture on three dimensions. Mathematically, summing up the differences on each dimension would leave German culture closer to Japanese than US culture, although it should be noted that Hofstede’s dimensions are not meant to be used in this simplistic way. Japan is closer to Germany on all but the power distance and, technically, the indulgence dimension, but has in fact an almost identical value to Germany on the latter.

On this basis, I expected Japanese interviewees to feel a higher similarity with the German subsidiary’s culture and Germans to rate the Japanese subsidiary as more similar about half of the time. Although the sample was by no means big enough to claim statistical validity, the answers fulfilled the expectations: Three out of six Germans and three out of

four Japanese saw closer cultural similarity between the Japanese and German subsidiaries compared to the US subsidiaries. Interestingly, the only Japanese interviewee who saw closer similarity to the US said this was due to the company headquarters being located there and Japanese employees being more used to working with people from the US for this reason. She added that in general “typical Japanese companies [were] very different from US companies”.

Among the Japanese questionnaire respondents, 87% agree or strongly agree that they generally found working with Germans easy. Among the German participants, the trend is not quite as clear (35% agreeing or strongly agreeing, 24% disagreeing, other responses neutral), but still shows a positive tendency. Having said that, over 70% of both Japanese and German respondents agree with the statement that there are cultural similarities between the two cultures which make working together easy. A lower number (less than 50%) agrees that there are cultural differences which make working together difficult.

5. DISCUSSION

This chapter discusses the findings; in particular, the role of awareness for avoiding conflicts, recommendations for facilitating collaborations, and chances for mutual learning.

5.1 Conflicts and the Role of Awareness

Overall, very few interviewees mentioned any major conflict in their collaborations. They often explained about differences in aspects of Japanese and German culture or work style that they had noticed, some of which would be difficult to understand at first or cause some degree of frustration (e.g. Germans perceiving Japanese decision-making as very slow). They emphasized, however, that these differences were rarely cause of any conflicts. They pointed out that knowledge of differences enabled them to plan for them and adequately adjust their expectations and behavior, thus allowing them to prevent conflicts and leverage business opportunities. This demonstrates the importance of being awareness for avoiding difficulties.

Several interviewees had many years of experience working with Japanese or Germans, respectively. They often mentioned having some difficulties in their collaborations in the beginning, but being able to avoid them now because of their experience. This indicates that awareness of differences is an important factor for collaborations to run smoothly. In addition, 92% of the web survey respondents agreed or strongly agreed to the statement “if you are aware of differences between Germans and Japanese, you can avoid most problems caused by these differences”; none of the respondents disagreed.

While for many interviewees this awareness was the result of many years of experience, the learning process may be sped up by methods such as training and mentoring, which will be addressed in section 5.2.1 .

5.2 Recommendations for Facilitating Collaborations of Japanese and Germans

After challenges of collaborations between Japanese and Germans have been identified in a previous chapter, this chapter discusses ways to address these challenges.

5.2.1 Training and Mentoring

As mentioned in a previous section, interviewees emphasized the importance of being aware of differences—not just cultural differences, but also differences of the working context in Japan and Germany, including in particular characteristics of the IT market and industry. Given awareness, most problems could be avoided. One way to facilitate collaborations between Japanese and Germans is therefore to create this awareness for differences, for example with training or mentoring of managers and employees who are about to enter a collaboration with Japanese/Germans. The importance of cultural training has also been pointed out by previous research on global software development, although in different cultural contexts [13].

Given that the resources companies can invest into trainings are limited, the question becomes which contents these trainings should focus on. The challenges which have been identified in chapter 4.2 give an indication of the most important problem areas. Further, questionnaire respondents were asked to select the trainings they would like Japanese and German respondents to take, respectively, in order to make collaborations easier (the full list of presented options can be found in Appendix A). The five trainings that were most

often selected for Germans (respectively by Japanese and German respondents) are shown in Table 7, the trainings most often selected for Japanese in Table 8.

Language training is essential and especially Japanese subsidiaries should invest into their employees' English abilities, given that two thirds of questionnaire respondents chose English language training when selecting trainings for Japanese people, but only one third when selecting trainings for German people. As has been described in the previous chapter, the language barrier is a core issue, as it amplifies other difficulties. The focus should be put on oral rather than written communication, since this is where the main difficulty lies.

Formal cultural training should be given to address differences in the areas of decision-making, communication behavior, creating trust and the different role of work and private life in Japanese and German culture. Apart from cultural training, additional training should be given on differences in project management, client-supplier relationship and characteristics of the IT market in Japan and Germany, in particular the predominance of custom-built software in the Japanese market and consequent client expectations.

Previous research has pointed out the importance of cultural training for the adjustment process of expatriates [48]. In this context, Forster found that expatriates highly valued cultural briefings before moving to a remote location, but pointed out the importance of continuing trainings after expatriates have moved [48]. Findings from this thesis support the importance of cultural awareness for smooth collaborations, which may be created by cultural trainings. Following Forster's argumentation, initial trainings should be supplemented by more long-term measures to support the learning curve of collaboration partners over time. Apart from more trainings, I suggest to assign "cultural mentors" with experience of Japanese-German collaborations and its typical challenges to achieve this. This measure was rated as useful/very useful by 59% of German and 64% of Japanese

questionnaire respondents (all others rated it as "somewhat useful"). Companies could build up databases with employees' international experience in order to make mentoring readily available.

TABLE 7 TRAININGS FOR GERMANS TO FACILITATE COLLABORATIONS, CHOSEN BY GERMAN AND JAPANESE QUESTIONNAIRE RESPONDENTS (RESPECTIVE TOP 5 SELECTION PRINTED IN BOLD)

Training	*Percentage of German respondents who chose the training*	*Percentage of Japanese respondents who chose the training*
Cultural training: On differences in communication behavior	**76%**	**100%**
Training on differences in project management in Japan and Germany	**65%**	**63%**
Cultural training: On differences in decision-making	**65%**	**50%**
Language training: English	**47%**	13%
Language training: Japanese	**47%**	0%
Training on characteristics of the Japanese/German IT market	35%	**50%**
Training on differences in client-supplier relationship in Japan and Germany	29%	**50%**

TABLE 8 TRAININGS FOR JAPANESE TO FACILITATE COLLABORATIONS, CHOSEN BY GERMAN AND JAPANESE QUESTIONNAIRE RESPONDENTS (RESPECTIVE TOP 5 SELECTION PRINTED IN BOLD)

Training	*Percentage of German respondents who chose the training*	*Percentage of Japanese respondents who chose the training*
Cultural training: On differences in communication behavior	**65%**	**88%**
Language training: English	**82%**	**75%**
Cultural training: On differences in decision-making	**65%**	**63%**
Training on differences in project management in Japan and Germany	**53%**	**63%**
Training on differences in client-supplier relationship in Japan and Germany	24%	**38%**
Cultural training: On differences in body language	**47%**	0%

5.2.2 Other Ways to Facilitate Collaborations

The following explains possible measures to facilitate collaborations other than training and mentoring.

a) Language Barrier

For alleviating the language barrier between Germans and Japanese, language training has already been described as a useful measure. As a hiring strategy, targeting bilinguals for interfacing positions between the two cultures is another obvious measure.

With the current progress in AI and automated translation tools, the language barrier will likely become less of a problem in the future. Especially for written communication, companies can expect an increasing benefit from using such tools. In preparation for the Tokyo 2020 Olympics, Japanese companies have stepped up efforts in machine translation. For example, in 2014 NTT Docomo announced a new joint venture with the explicit aim to "enable the development of highly accurate machine translation software capable of satisfying diverse needs, from the translation of business documents to conversation-level communication required by tourists" [49]. Japan's Ministry of Internal Affairs and Communications "is working to implement multilingual voice-based translation systems [under a five-year plan that began in FY 2015]" [50, p. 81]. Still, as the quality of machine translation is likely to remain higher for written than for oral communication over the next years (and has its limitations in both fields), language training remains important especially for oral communication.

Before meetings, sending the meeting agenda or presentation slides well in advance allows participants to prepare and get familiar with the required vocabulary. This can thus be helpful for overcoming the language barrier.

b) Decision-making

Japanese companies expanding to Germany should focus on speed, i.e. in particular establishing quick communication mechanisms between their German subsidiary and Japanese headquarters and enabling quick decision-making to avoid being perceived as slow by German clients and partners. A key mechanism to achieve this is the definition of clear individual responsibilities and authorities and thus the empowerment of local employees/managers to make most decisions quickly without needing consent from the Japanese headquarters. A similar approach was employed by the company investigated in Brannen and Salk's case study on cultural negotiation in a Japanese-German joint venture [31]. Depending on the corporate culture, such measures may be faced with some resistance from within the company. However, I recommend companies to try and identify at least some areas in which individual decision-making is unproblematic and empower employees who interface with Germans as much as possible.

Japanese managers in the company studied by Brannen and Salk [31] employed another interesting way to speed up decisions. By pro-actively reporting to their Japanese headquarters, they were able to gain approval for decisions ahead of the formal decision-making with their German partners. Thus they were able to reduce situations where they needed to revisit decisions that had already been agreed upon locally, which had often irritated German managers.

c) Communication

One approach to alleviate the distance between headquarters and Japanese or German subsidiary is to use employees as a "cultural bridge" (also called "cultural liaison") (e.g. [2], [11], [14]): An employee from the headquarters is sent to the subsidiary (or vice-versa) in order to facilitate communication and prevent misunderstandings through his/her cultural knowledge. This can happen in the form of a permanent assignment or frequent

business trips to both locations. Using employees as cultural bridge is seen as useful or very useful by 76% of German and 100% of Japanese questionnaire respondents.

In some settings, e.g. in a joint venture or among companies belonging to the same group, it may also be feasible to exchange one or several employees or managers between Japanese and German companies for a certain amount of time. Employees will get to know the working style and context in the other company and, after being reassigned to their original company, can use their knowledge to facilitate collaborations. Personnel exchanges like this have traditionally been used in Japanese keiretsu and served to reinforce ties between affiliated companies [51].

Regarding their individual communication behavior, Japanese and German employees should be advised to double-check their understanding when interacting with partners from the other culture in order to avoid misunderstandings (which are often caused by Germans having difficulties to distinguish Honne and Tatemae).

Similarly, I recommend to keep protocols of meetings and the decisions made in them. The contents should be checked and confirmed by meeting participants after the meeting. This can help to reveal and avoid misunderstandings where some collaboration partners mistakenly assume to have an understanding with the other and are caught by surprise when this turns out not to be the case later on.

In order to prepare for important decisions, Germans are well-advised to identify the persons who should be involved in them from a Japanese point of view, e.g. by consulting with a Japanese colleague. Typically this will include more people than would be deemed necessary in an all-German setting. Germans should try to network outside of formal meetings and strive to gain support for decisions ahead of them, involving all people identified in the first step.

d) Trust

On an organizational level, for German companies expanding to Japan it is important to demonstrate their long-term commitment to the Japanese market in order to build reputation and trust relationships with Japanese clients.

On a personal level, it is important for companies to enable meetings in person in case of a geographically distributed collaboration. In particular, holding project kick-off meetings in person is rated as useful (or very useful) by all questionnaire respondents. Frequent business trips (rated as useful or very useful by 70% of German and 75% of Japanese respondents) further help to build good trust relationships. Informal activities outside of work, such as going out together (seen as useful or very useful by 100% of German and 76% of Japanese respondents), and team-building activities with both Japanese and Germans (seen as useful or very useful by 70% of German and 100% of Japanese respondents) should also be considered.

e) Time difference

Flexible working hours and remote work can help to bridge the time difference between Japan and Germany in geographically distributed settings. By allowing Japanese workers to take calls later at night from their home (or starting and finishing work later in the day), one can extend the time window available for synchronous communication despite shrinking average working hours.

5.3 Chances for Mutual Learning

Japan and Germany both face the problem of an aging society. Therefore the two countries may be able to learn from the way that the other deals with this challenge. As in Germany the effect of the demographic change is offset by a higher amount of immigration, this means that Japan faces aging related problems sooner than Germany.

That opens up chances especially for Germany to learn from Japan, e.g. by German companies referring to the approaches Japanese companies apply for dealing with the shrinking labor force through automation, robotics, etc.

In Japan, younger generations have increasingly higher expectations towards work-life balance when compared to previous generations. Combined with the shrinking labor force, this puts pressure on Japanese companies to reduce working hours while at the same time increasing overall output in order to account for the rising proportion of the non-working elderly people in the population. That is to say, there is a need to increase efficiency. While part of this may be accomplished by more automation, modifying some business practices can also contribute towards this aim. For example, some of the elements that contribute towards the higher speed of decision-making in German firms could be adopted to increase speed of decision-making in Japanese companies and thus increase overall efficiency.

6. SUMMARY AND CONCLUSION

This thesis investigates collaborations of Japanese and Germans in the IT industry, focusing on characteristics and challenges. Chapter 1 introduced the background and motivation for this topic, in particular globalization and an increased likelihood of collaborations of Japanese and Germans in the future through the Japan-EU free trade agreement, collaboration in Industry 4.0 and a similar demographic development. Chapter 2 summarized related literature, which includes research on culture, global software development, and the structures of the Japanese and German software industry. Chapter 3 described the research methodology, which is built upon literature review, semi-structured interviews, economic statistics and a web survey. Chapter 4 described the findings. It explained characteristics of Japanese-German collaborations in the IT business, such as the similarity of basic economic conditions and why the setting of Germans being in the role as supplier/service provider for a Japanese client is the typical case for the software business. Further, it identified and explained the main challenges of such collaborations. Chapter 5 discussed the role of awareness for avoiding conflicts and benefits of Japanese-German collaborations. It also gave recommendations for facilitating collaborations between Japanese and Germans in the IT business, including language training, cultural training on topics identified in chapter 4, training on market characteristics, mentoring and using employees as “cultural bridge”.

This research identifies the main challenges of collaborations between Japanese and Germans in the IT business as language barrier, different communication behavior, decision-making, establishing trust, different prioritization of work life and private life, and differences in client-supplier relationship. Others include different software customization expectations of clients and time difference.

Despite these challenges, interviewees rarely mentioned major conflicts and often explained that awareness of differences enabled them to avoid difficulties. Many of them pointed out perceived cultural similarities between Japanese and Germans. This indicates that with sufficient training (formal or informal), Japanese-German collaborations in the IT business can be expected to run without bigger conflicts, except for those concerning subject matters.

REFERENCES

[1] B. Sengupta, S. Chandra, and V. Sinha, "A Research Agenda for Distributed Software Development," in *Proceedings of the 28th International Conference on Software Engineering*, New York, NY, USA, 2006, pp. 731–740.

[2] E. Carmel and R. Agarwal, "Tactical approaches for alleviating distance in global software development," *IEEE Softw.*, vol. 18, no. 2, pp. 22–29, Mar. 2001.

[3] R. Prikladnicki, J. L. Nicolas Audy, and R. Evaristo, "Global software development in practice lessons learned," *Softw. Process Improv. Pract.*, vol. 8, no. 4, pp. 267–281, Oct. 2003.

[4] R. Prikladnicki, A. Boden, G. Avram, C. R. B. de Souza, and V. Wulf, "Data collection in global software engineering research: learning from past experience," *Empir. Softw. Eng.*, vol. 19, no. 4, pp. 822–856, Jan. 2013.

[5] J. D. Herbsleb and D. Moitra, "Global software development," *IEEE Softw.*, vol. 18, no. 2, pp. 16–20, Mar. 2001.

[6] P. J. Agerfalk, B. Fitzgerald, H. Holmstrom Olsson, B. Lings, B. Lundell, and E. Ó Conchúir, "A framework for considering opportunities and threats in distributed software development," 2005.

[7] A. Boden, G. Avram, L. Bannon, and V. Wulf, "Knowledge Management in Distributed Software Development Teams - Does Culture Matter?," in *2009 Fourth IEEE International Conference on Global Software Engineering*, 2009, pp. 18–27.

[8] S. Deshpande, I. Richardson, V. Casey, and S. Beecham, "Culture in Global Software Development - A Weakness or Strength?," in *2010 5th IEEE International Conference on Global Software Engineering*, 2010, pp. 67–76.

[9] V. Casey, "Imparting the Importance of Culture to Global Software Development," *ACM Inroads*, vol. 1, no. 3, pp. 51–57, Sep. 2011.

[10] L. Fernandez-Sanz and S. Misra, "Analysis of cultural and gender influences on teamwork performance for software requirements analysis in multinational environments," *IET Softw.*, vol. 6, no. 3, pp. 167–175, Jun. 2012.

[11] S. Krishna, S. Sahay, and G. Walsham, "Managing Cross-cultural Issues in Global Software Outsourcing," *Commun ACM*, vol. 47, no. 4, pp. 62–66, Apr. 2004.

[12] J. D. Herbsleb, D. J. Paulish, and M. Bass, "Global software development at Siemens: experience from nine projects," in *Proceedings. 27th International Conference on Software Engineering, 2005. ICSE 2005.*, 2005, pp. 524–533.

[13] V. Casey, "Leveraging or Exploiting Cultural Difference?," in *2009 Fourth IEEE International Conference on Global Software Engineering*, 2009, pp. 8–17.

[14] A. Boden, G. Avram, L. Bannon, and V. Wulf, "Knowledge sharing practices and the impact of cultural factors: reflections on two case studies of offshoring in SME," *J. Softw. Evol. Process*, vol. 24, no. 2, pp. 139–152, Mar. 2012.

[15] P. S. Brockmann and T. Thaumuller, "Cultural Aspects of Global Requirements Engineering: An Empirical Chinese-German Case Study," in *2009 Fourth IEEE International Conference on Global Software Engineering*, 2009, pp. 353–357.

[16] G. Borchers, "The Software Engineering Impacts of Cultural Factors on Multi-cultural Software Development Teams," in *Proceedings of the 25th International Conference on Software Engineering*, Washington, DC, USA, 2003, pp. 540–545.

[17] J. D. Herbsleb and R. E. Grinter, "Splitting the organization and integrating the code," *Proc. 21st Int. Conf. Softw. Eng. - ICSE 3999*.

[18] A. Boden, B. Nett, and V. Wulf, “Coordination Practices in Distributed Software Development of Small Enterprises,” in *International Conference on Global Software Engineering (ICGSE 2007)*, 2007, pp. 235–246.
[19] D. Damian, S. Marczak, and I. Kwan, “Collaboration Patterns and the Impact of Distance on Awareness in Requirements-Centred Social Networks,” in *15th IEEE International Requirements Engineering Conference (RE 2007)*, 2007, pp. 59–68.
[20] D. E. Damian and D. Zowghi, “Requirements Engineering challenges in multi-site software development organisations,” *Requir. Eng.*, vol. 8, no. 3, pp. 149–160, Jul. 2003.
[21] M. Bass, J. D. Herbsleb, and C. Lescher, “Collaboration in Global Software Projects at Siemens: An Experience Report,” in *International Conference on Global Software Engineering (ICGSE 2007)*, 2007, pp. 33–39.
[22] M. Korkala, M. Pikkarainen, and K. Conboy, “Distributed Agile Development: A Case Study of Customer Communication Challenges,” in *Agile Processes in Software Engineering and Extreme Programming*, P. Abrahamsson, M. Marchesi, and F. Maurer, Eds. Springer Berlin Heidelberg, 2009, pp. 161–167.
[23] German Federal Ministry for Economic Affairs and Energy, “Minister Zypries: ‘’Agreement in principle’ on the EU-Japan FTA sends a strong signal for free trade and against protectionism,’” 06-Jul-2017.
[24] G. Felbermayr, F. Kimura, T. Okubo, M. Steininger, and E. Yalcin, “On the Economics of an EU-Japan Free Trade Agreement,” *GED Study Ifo Inst. Behalf Bertelsmann Found. Munich*, vol. 3, 2017.
[25] Federal Ministry for Economic Affairs and Energy of the Federal Republic of Germany and Ministry of Economy, Trade and Industry of Japan, “Joint Statement on Cooperation between the Federal Ministry for Economic Affairs and Energy of the Federal Republic of Germany and the Ministry of Economy, Trade and Industry of Japan regarding the Internet of Things/Industrie 4.0.” 28-Apr-2016.
[26] Central Intelligence Agency, *The World Factbook*, 2016. [Online]. Available: https://www.cia.gov/library/publications/the-world-factbook/. [Accessed: 20-Jul-2017].
[27] G. Hofstede, G. J. Hofstede, and M. Minkov, *Cultures and Organizations: Software of the Mind, Third Edition*, 3 edition. New York: McGraw-Hill Education, 2010.
[28] P. B. Smith, M. F. Peterson, and S. H. Schwartz, “Cultural Values, Sources of Guidance, and their Relevance to Managerial Behavior: A 47-Nation Study,” *J. Cross-Cult. Psychol.*, vol. 33, no. 2, pp. 188–208, Mar. 2002.
[29] E. MacGregor, Y. Hsieh, and P. Kruchten, “The impact of intercultural factors on global software development,” in *Canadian Conference on Electrical and Computer Engineering, 2005.*, 2005, pp. 920–926.
[30] D. E. Damian and D. Zowghi, “An insight into the interplay between culture, conflict and distance in globally distributed requirements negotiations,” in *System Sciences, 2003. Proceedings of the 36th Annual Hawaii International Conference on*, 2003.
[31] M. Y. Brannen and J. E. Salk, “Partnering Across Borders: Negotiating Organizational Culture in a German-Japanese Joint Venture,” *Hum. Relat.*, vol. 53, no. 4, pp. 451–487, Apr. 2000.
[32] S. Strambach and C. Storz, “Pfadabhängigkeit und Pfadplastizität von Innovationssystemen – Die deutsche und japanische Softwareindustrie,” *Vierteljahrsh. Zur Wirtsch.*, vol. 77, no. 2, pp. 142–161, Apr. 2008.

[33] M. A. Cusumano, “The Puzzle of Japanese Software,” *Commun ACM*, vol. 48, no. 7, pp. 25–27, Jul. 2005.
[34] T. Leimbach, “The SAP Story: Evolution of SAP within the German Software Industry,” *IEEE Ann. Hist. Comput.*, vol. 30, no. 4, pp. 60–76, Oct. 2008.
[35] T. Leimbach, *Software und IT-Dienstleistungen: Kernkompetenzen der Wissensgesellschaft Deutschland*. Karlsruhe: Fraunhofer ISI, 2010.
[36] R. E. Cole and Yoshifumi Nakata, “The Japanese Software Industry: What Went Wrong and What Can We Learn From It?,” *Calif. Manage. Rev.*, vol. 57, no. 1, pp. 16–43, Fall 2014.
[37] T. Matsubara, “Japan: a huge IT consumption market,” *IEEE Softw.*, vol. 18, no. 5, pp. 77–80, Sep. 2001.
[38] OECD, “Structural and Demographic Business Statistics (SDBS) (database).” [Online]. Available: http://www.oecd.org/std/business-stats/structuralanddemographicbusinessstatisticssdbsoecd.htm. [Accessed: 20-Jul-2017].
[39] UN Comtrade, “International Trade Statistics Database.” [Online]. Available: https://comtrade.un.org/. [Accessed: 20-Jul-2017].
[40] OECD, “Bilateral Trade Database by Industry and End-Use (BTDIxE),” 2017. [Online]. Available: http://www.oecd.org/trade/bilateraltradeingoodsbyindustryandend-usecategory.htm. [Accessed: 20-Jul-2017].
[41] OECD, *OECD Digital Economy Outlook 2015*. Paris: Organisation for Economic Co-operation and Development, 2015.
[42] M. Namba, “Growth mechanism to the ‘Global Niche Leader’: Comparison study of Japanese and German companies,” in *Proceedings of PICMET ’14 Conference: Portland International Center for Management of Engineering and Technology; Infrastructure and Service Integration*, 2014, pp. 1017–1023.
[43] Jean McGuire and Sandra Dow, “Keiretsu organization in a changing economic context: the evolution of debt and equity ties among keiretsu firms,” in *Japanese Firms in Transition: Responding to the Globalization Challenge*, vol. 17, 0 vols., Emerald Group Publishing Limited, 2004, pp. 115–138.
[44] OECD, “Trade in services - EBOPS 2010,” Organisation for Economic Co-operation and Development, Paris, Oct. 2014.
[45] Educational Testing Service, “2016 Report on Test Takers Worldwide: The TOEIC® Listening and Reading Test,” ETS, 2017.
[46] “Can We Learn Management Techniques From the Japanese Ringi Process? - Free Online Library.” [Online]. Available: https://www.thefreelibrary.com/Can+We+Learn+Management+Techniques+From+the+Japanese+Ringi+Process%3f-a070659001. [Accessed: 11-Jun-2017].
[47] OECD, “Employment - Hours worked - OECD Data.” [Online]. Available: http://data.oecd.org/emp/hours-worked.htm. [Accessed: 21-Jul-2017].
[48] N. Forster, “Expatriates and the impact of cross-cultural training,” *Hum. Resour. Manag. J.*, vol. 10, no. 3, pp. 63–78, Jul. 2000.
[49] NTT DOCOMO, “DOCOMO, SYSTRAN and FueTrek Form Joint Venture to Develop Translation Services,” 29-Sep-2014. [Online]. Available: https://www.nttdocomo.co.jp/english/info/media_center/pr/2014/0929_00.html. [Accessed: 17-Aug-2017].
[50] Ministry of Internal Affairs and Communications, Japan, “White Paper on Information and Communications in Japan.” 2016.
[51] J. McGuire and S. Dow, “Japanese keiretsu: Past, present, future,” *Asia Pac. J. Manag.*, vol. 26, no. 2, pp. 333–351, Jun. 2009.

ACKNOWLEDGEMENTS

First and foremost, I want to thank Prof. Toma, whose kind and valuable advice guided me over the course of this thesis. There are few professors who are as dedicated to helping their students as Toma-sensei. I also thank Horiuchi-sensei, who helped me in the early stages of my research, and Takano-sensei for his valuable feedback towards the end.

I am deeply grateful to all my interviewees, who took time out of their busy schedules to share their experience with me, and to all the people who helped me find these interviewees in the first place. Without their kindness, my research could not have succeeded.

I thank the participants of my web survey, who went through the rarely enjoyable task of answering a questionnaire in order to help out a student like me.

My heartfelt appreciation goes to my fellow students at Keio SDM, who were part of my journey over the past two years and always ready to discuss and help.

Last but not least, I am forever thankful for my family for always supporting and being there for me.

APPENDIX

A. Web questionnaire

This appendix contains the web questionnaire used in this research. The different elements, numbered Q1 to Q54, contain either a question or description. Q1 only contained a general description of the survey and participation criteria and was therefore omitted. Variables were used to customize the questions to Japanese and German respondents, respectively. They have the form "${e://Field/… }". For example, the variable ${e://Field/PartnerPeople} was displayed as "Japanese" for German respondents and as "Germans" for Japanese respondents.

Q2 What is your nationality?
- ❍ German (1)
- ❍ Japanese (2)
- ❍ None of the above (exit survey) (3)

Condition: None of the above (exit sur... Is Selected. Skip To: End of Survey.

Q3 Do you have experience working with ${e://Field/PartnerNationality} people?
- ❍ Yes (1)
- ❍ No (exit survey) (2)

Condition: No (exit survey) Is Selected. Skip To: End of Survey.

Q4 When you worked with the ${e://Field/PartnerPeople}, did this have some relation to IT? (e.g. IT consulting, software development, IT sales, working in an IT company, ...)
- ❍ Yes (1)
- ❍ No (exit survey) (2)

Condition: No (exit survey) Is Selected. Skip To: End of Survey.

Q5 What is your age group?
- ❍ under 25 (1)
- ❍ 25-34 (2)
- ❍ 35-44 (4)
- ❍ 45-54 (5)
- ❍ 55-64 (6)
- ❍ 65 and older (7)

Q6 How much experience of working with ${e://Field/PartnerPeople} do you have in your own opinion?

- ❍ very little (1)
- ❍ little (2)
- ❍ some (3)
- ❍ much (4)
- ❍ very much (5)

Q7 Note: In this survey, “collaboration” means: a situation in which you work(ed) together with Japanese/Germans. For example: as colleagues, partners in development projects, client and supplier/service provider, etc.

Q8 In which time frame(s) did you experience working with ${e://Field/PartnerPeople}? Please check all boxes which apply.

- ❑ before 1995 (1)
- ❑ 1995-1999 (2)
- ❑ 2000-2004 (3)
- ❑ 2005-2009 (4)
- ❑ 2010-2014 (5)
- ❑ 2015 and after (6)

Q9 Where was the HQ of the company/companies you worked for during your collaborations? Please check all boxes which apply.

- ❑ in Germany (1)
- ❑ in Japan (2)
- ❑ in the US (3)
- ❑ in another country (4)

Q10 Where were you working during your collaboration(s)? Please check all boxes which apply.

- ❑ In Japan (1)
- ❑ In Germany (2)
- ❑ In the US (3)
- ❑ In another country (4)

Q11 Where were your ${e://Field/PartnerNationality} partners working during your collaboration(s)? Please check all boxes which apply.

- ❑ at the same company as me (1)
- ❑ at a different company / different companies (2)
- ❑ in the same country as me (3)
- ❑ in a different country / different countries (4)

Q12 Did you ever work with ${e://Field/PartnerNationality} clients?

- ❍ Yes (1)
- ❍ No (2)

Q13 Did you ever work with ${e://Field/PartnerNationality} suppliers/service providers?
- ❍ Yes (1)
- ❍ No (2)

Q14 What describes the context of the collaborations you experienced? Please check all boxes which apply.
- ❑ Sales (19)
- ❑ Marketing (23)
- ❑ Software Sales (20)
- ❑ Hardware Sales (21)
- ❑ Procurement (22)
- ❑ Software development (12)
- ❑ Research (13)
- ❑ IT consulting (14)
- ❑ Standard software (15)
- ❑ Custom-built software (16)
- ❑ System integration (17)
- ❑ other: (18) _____

Q15 What describes your role(s) in these collaborations? Please check all boxes which apply.
- ❑ Salesman (11)
- ❑ Marketer (12)
- ❑ Purchaser (10)
- ❑ IT Consultant (13)
- ❑ Software Engineer (14)
- ❑ Engineer (not software) (15)
- ❑ Project Manager (16)
- ❑ Product Manager (17)
- ❑ Manager (18)
- ❑ Researcher (19)
- ❑ other: (20) _____

Q16 Would you say you served as a “bridge” between Germans and Japanese?
- ❍ Yes (1)
- ❍ No (2)

Q17 (optional) In case you want to give any comment/clarification on your answers so far, please do so:

Q18 Note: In this survey, “collaboration” means: a situation in which you work(ed) together with Japanese/Germans. For example: as colleagues, partners in development projects, client and supplier/service provider, etc.

Q19 What describes your language skills during the collaboration(s) you described earlier?

	Skill level in the beginning of the collaboration(s)					Skill level in the end of the collaboration(s)				
	no/very little knowledge (1)	basic knowledge (2)	conversational (3)	business level (4)	fluent/native (5)	no/very little knowledge (1)	basic knowledge (2)	conversational (3)	business level (4)	fluent/native (5)
English (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
German (2)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Japanese (3)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q20 Which language(s) were you using to communicate with your ${e://Field/PartnerNationality} collaboration partners? Please check all boxes which apply.

- ❑ Japanese (1)
- ❑ German (2)
- ❑ English (3)
- ❑ Other (4) _____

Q21 Did the Japanese or Germans in your collaborations ever use an interpreter to communicate in English?

	never (3)	rarely (4)	sometimes (5)	often (6)	very often (7)	n/a (8)
Japanese using an interpreter: (1)	❍	❍	❍	❍	❍	❍
Germans using an interpreter: (2)	❍	❍	❍	❍	❍	❍

Q22 Do you agree with the following statements?

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	n/a (6)
Sometimes it was difficult for me to express my opinion due to my English skills (2)	❍	❍	❍	❍	❍	❍
Sometimes it was difficult for me to follow what was happening in meetings due to my English skills (3)	❍	❍	❍	❍	❍	❍
Sometimes I did not understand what was happening at meetings because my ${e://Field/PartnerNationality} partners spoke in ${e://Field/PartnerNationality} (4)	❍	❍	❍	❍	❍	❍
Most of the difficulties I experienced in my collaborations were due to language issues (1)	❍	❍	❍	❍	❍	❍

Q23 From your experience, what describes typical decision-making in Japanese companies / German companies?

	Japanese companies						German companies					
	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	n/a (6)	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	n/a (6)
Decisions are consensus-based (rather than top-down) (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Decisions are made by individuals (rather than by	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

groups of people) (2)												
Individual areas of responsibility are clearly defined (3)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Decisions are mostly based on logic (4)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Decisions consider “soft factors” such as personal relationships, feelings, etc. (5)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Decision-makers go into details early (6)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Employees only feel responsible for areas stated in their job description (8)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Decisions are mostly discussed in	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

meetings (9)												

Q24 Based on your experience, do you agree with thefollowing statements for "typical" Japanese / German companies?

	Japanese companies						German companies					
	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	n/a (6)	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	n/a (6)
Managers assign tasks to employees on a daily basis (ad-hoc) (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Managers delegate the responsibility for outcomes rather than tasks (2)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Employees expect detailed instructions from their superiors (3)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Employees work independently (4)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q25 In general, how would you rate the speed of decision-making in Japanese and German companies?

	very slow (1)	slow (2)	moderate (3)	fast (4)	very fast (5)	n/a (6)
in Japanese companies (1)	❍	❍	❍	❍	❍	❍
in German companies (2)	❍	❍	❍	❍	❍	❍

Q26 In general, do you think the amount of time ${e://Field/PartnerPeople} spend on making decisions is adequate/not enough/too much?

- ❍ not enough (1)
- ❍ not quite enough (2)
- ❍ adequate (3)
- ❍ a little too much (4)
- ❍ too much (5)
- ❍ n/a (6)

Q27 From your experience, what describes the typical communication behavior in Japanese companies / in German companies?

	Japanese companies						German companies					
	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	n/a (6)	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	n/a (6)
Employees communicate freely across different levels of hierarchy (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Employees are expected to consult their superior before contacting	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

employees working in another department (3)												
Employees are expected to consult their superior before contacting employees of another company (4)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Managers from other departments should be contacted by managers of the same (or higher) rank (5)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Managers from other companies should be contacted by managers of the same (or higher) rank (6)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q28 In general, how openly do Japanese / German people talk about problems in your experience?

	Avoid talking about problems (1)	Mostly avoid talking about problems (2)	Sometimes open, sometimes not (3)	Mostly open about problems (4)	Very open about problems (5)	n/a (6)
Japanese (1)	❍	❍	❍	❍	❍	❍
Germans (2)	❍	❍	❍	❍	❍	❍

Q29 Do you agree with the following statements?

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	n/a (6)
Japanese employees often openly disagree with higher-ranking people (1)	❍	❍	❍	❍	❍	❍
German employees often openly disagree with higher-ranking people (2)	❍	❍	❍	❍	❍	❍

Q30 Have you ever experienced a Japanese partner (colleague, client, …) getting upset about...

	never (4)	rarely (5)	sometimes (6)	often (7)	very often (8)	n/a (1)
... a German being on a holiday? (1)	❍	❍	❍	❍	❍	❍
... Germans working less hours (in comparison to Japanese)? (2)	❍	❍	❍	❍	❍	❍

Q31 Do you agree with the following statement?

	Strongly disagree (4)	Disagree (5)	Neutral (6)	Agree (7)	Strongly Agree (8)	n/a (9)
I am willing to compromise on my free time / holidays for the sake of my company (1)	❍	❍	❍	❍	❍	❍

Q32 Note: In this section, the term “supplier” includes both “supplier” and “service provider”.

Q33 What describes the relationship between client and supplier in Japan/Germany in your opinion?

	The supplier has a higher position than the client (3)	The supplier has a slightly higher position than the client (4)	Client and supplier are equals (5)	The client has a slightly higher position than the supplier (6)	The client has a higher position than the supplier (7)	n/a (1)
In Japan: (1)	❍	❍	❍	❍	❍	❍
In Germany: (2)	❍	❍	❍	❍	❍	❍

Q34 Do you agree with the following statements?

	Strongly disagree (4)	Disagree (5)	Neutral (6)	Agree (7)	Strongly Agree (8)	n/a (9)
German clients expect that suppliers ask them for detailed requirements before making a business proposal (1)	❍	❍	❍	❍	❍	❍
Japanese clients expect that suppliers ask them for detailed requirements before making a business proposal (2)	❍	❍	❍	❍	❍	❍

Q35 Do you agree with the following statement? ${e://Field/OwnNationality} IT companies entering the ${e://Field/PartnerNationality} market face the difficulty that ${e://Field/PartnerNationality} companies often have a strong established network of partners/suppliers for IT solutions.

- ❍ Strongly disagree (4)
- ❍ Disagree (5)
- ❍ Neutral (6)
- ❍ Agree (7)
- ❍ Strongly Agree (8)
- ❍ n/a (9)

Q36 Imagine that in the implementation phase of an IT project the client wants to add a requirement. From the supplier's perspective, this requirement is a major change. Do you agree with the following statements for the case of a Japanese supplier / a German supplier?

	Japanese supplier						German supplier					
	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	n/a (6)	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	n/a (6)
The supplier	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

will probably demand more money (4)												
The supplier will probably demand more time (5)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
The supplier has probably planned in a large time buffer for such requirements (6)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
The supplier has probably planned in a large cost buffer for such requirements (7)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q37 Based on your experience, do you agree with the following statements about "typical" Japanese / German business clients?

	Japanese business client						German business client					
	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	n/a (6)	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	n/a (6)
Clients expect a high degree of software customization (4)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Clients have experience with standard business software (i.e. software that is not custom-built) (5)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Clients often use integrated business software solutions (6)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
Clients tolerate quality issues (bugs etc.) in early versions of a new software product/solution (7)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Q38 Do you agree with the following statements?

	Strongly disagree (4)	Disagree (5)	Neutral (6)	Agree (7)	Strongly Agree (8)	n/a (9)
Japan is an attractive market for German software companies (4)	❍	❍	❍	❍	❍	❍
Germany is an attractive market for Japanese software companies (5)	❍	❍	❍	❍	❍	❍
Japan as a market for German software companies is underrated (6)	❍	❍	❍	❍	❍	❍
Germany as a market for Japanese software companies is underrated (7)	❍	❍	❍	❍	❍	❍

Q39 Do you agree with the following statements?As a ${e://Field/OwnNationality} company entering the ${e://Field/PartnerNationality} market, ...

	Strongly disagree (4)	Disagree (5)	Neutral (6)	Agree (7)	Strongly Agree (8)	n/a (9)
... it is important to show long-term commitment to the ${e://Field/PartnerNationality} market (4)	❍	❍	❍	❍	❍	❍
... your company reputation plays a bigger role compared to ${e://Field/OwnCountry} (5)	❍	❍	❍	❍	❍	❍

Q40 Please answer the following questions.

1a) Have your ${e://Field/PartnerNationality} colleagues ever invited you to company events or going out together? How often? (1)	❍ never (1)	❍ rarely (2)	❍ sometimes (3)	❍ often (4)	❍ very often (5)	❍ n/a (6)
1b) In your experience, how helpful is joining such activities for building trust with ${e://Field/PartnerNationality} colleagues? (2)	❍ Not helpful (1)	❍ Hardly helpful (2)	❍ Somewhat helpful (3)	❍ helpful (4)	❍ Very helpful (5)	❍ n/a (6)
2a) Have you experienced a ${e://Field/PartnerNationality} colleague inviting you to his/her home? How often? (3)	❍ never (1)	❍ rarely (2)	❍ sometimes (3)	❍ often (4)	❍ very often (5)	❍ n/a (6)
2b) In your experience, how helpful is this for building trust with ${e://Field/PartnerNationality} colleagues? (4)	❍ Not helpful (1)	❍ Hardly helpful (2)	❍ Somewhat helpful (3)	❍ helpful (4)	❍ Very helpful (5)	❍ n/a (6)

Q41 Do you agree with the following statements?

	Strongly disagree (4)	Disagree (5)	Neutral (6)	Agree (7)	Strongly Agree (8)	n/a (9)
In my experience, it is easy for German and Japanese people to build trust if all of them have good English skills (10)	❍	❍	❍	❍	❍	❍
Sometimes I assumed I had an agreement with my ${e://Field/PartnerNationality} partners, but they didn't act accordingly (11)	❍	❍	❍	❍	❍	❍
Sometimes my ${e://Field/PartnerNationality} partners assumed we had agreed on something although this was not the case from my perspective (12)	❍	❍	❍	❍	❍	❍

Display This Question:
If What is your nationality? Japanese Is Selected

Q42 Based on your experience, do you agree with the following statement?

	Strongly disagree (4)	Disagree (5)	Neutral (6)	Agree (7)	Strongly Agree (8)	n/a (9)
Germans often cannot distinguish Tatemae from Honne (4)	❍	❍	❍	❍	❍	❍

Q43 In your experience, how much attention do Japanese people pay to issues related to privacy and data protection in their daily work (compared to Germans)?

- ❍ Much less than Germans (4)
- ❍ Less than Germans (5)
- ❍ Same as Germans (6)
- ❍ More than Germans (7)
- ❍ Much more than Germans (8)
- ❍ n/a (9)

Q44 Do you agree with the following statements?

There are cultural similarities between Japanese and Germans which make working together easy (5)	❍ Strongly disagree (1)	❍ Disagree (2)	❍ Neutral (3)	❍ Agree (4)	❍ Strongly Agree (5)	❍ n/a (6)
There are cultural differences between Japanese and Germans which make working together difficult (6)	❍ Strongly disagree (1)	❍ Disagree (2)	❍ Neutral (3)	❍ Agree (4)	❍ Strongly Agree (5)	❍ n/a (6)
I think conflicts between Japanese and Germans working together happen ... (7)	❍ almost never (1)	❍ rarely (2)	❍ sometimes (3)	❍ often (4)	❍ very often (5)	❍ n/a (6)
Cultural differences sometimes made it difficult for me to understand what my ${e://Field/PartnerNationality} partners were thinking (4)	❍ Strongly disagree (1)	❍ Disagree (2)	❍ Neutral (3)	❍ Agree (4)	❍ Strongly Agree (5)	❍ n/a (6)
In general, I found working with ${e://Field/PartnerPeople} easy (8)	❍ Strongly disagree (1)	❍ Disagree (2)	❍ Neutral (3)	❍ Agree (4)	❍ Strongly Agree (5)	❍ n/a (6)
I think in general it is easy for Japanese and Germans to work together (9)	❍ Strongly disagree (1)	❍ Disagree (2)	❍ Neutral (3)	❍ Agree (4)	❍ Strongly Agree (5)	❍ n/a (6)
If you are aware of differences between Germans and Japanese, you can avoid most problems caused by these differences (10)	❍ Strongly disagree (1)	❍ Disagree (2)	❍ Neutral (3)	❍ Agree (4)	❍ Strongly Agree (5)	❍ n/a (6)

Q45 Based on your experience: From the following list, which are the biggest challenges/difficulties for ${e://Field/OwnPeople} when working with ${e://Field/PartnerPeople}? Please decide for at least 5 (but no more than 10) elements and

order them such that the biggest challenge/difficulty is on top. You can use drag & drop to move the elements on the left to the box on the right and order them.

Challenges/Difficulties
_____ Client expectations regarding customization of software (4)
_____ Decision-making (5)
_____ Differences in communication behavior: Preference for vertical/horizontal communication (6)
_____ Differences in communication behavior: Body language, directness, etc. (7)
_____ Differences in customer orientation (8)
_____ Different client-supplier relationship in Japan/Germany (9)
_____ Different expectations regarding work-life balance (10)
_____ Different importance attached to privacy and data protection (17)
_____ Different technical standards (11)
_____ Establishing trust (on a personal level) (12)
_____ Establishing trust (on an organizational level) (13)
_____ Geographical distance (14)
_____ High expectations of ${e://Field/PartnerNationality} clients (16)
_____ Language barrier (18)
_____ Openness/willingness to enter new business relationships (19)
_____ Overall lack of cultural understanding (20)
_____ Speed of communication (21)
_____ Speed of decision-making (22)
_____ Time difference (23)
_____ Unclear individual responsibilities (24)
_____ Unclear requirements (25)
_____ Understanding the feelings of ${e://Field/PartnerNationality} partners (26)
_____ other: (27)

Q46 (optional) If you would like to write any comment/clarification about your response in the previous question, please do so:

Q47 Do you agree with the following statements?

	Strongly disagree (4)	Disagree (5)	Neutral (6)	Agree (7)	Strongly Agree (8)	n/a (9)
For a smooth collaboration, it is important to understand the characteristics of the Japanese/German IT market (1)	❍	❍	❍	❍	❍	❍
For a smooth collaboration, it is important to understand the characteristics of the Japanese/German IT industry (2)	❍	❍	❍	❍	❍	❍

Q48 This question is about ways to make collaborations between Japanese and Germans easier. Imagine you are in a situation where several Germans and Japanese start working together (e.g. for a new project). You can choose a number of trainings for the Japanese and Germans, respectively. a) From the following list, which trainings would you like the Japanese to take? b) Which trainings would you like the Germans to take? (see next question) Please choose at least 3 (but no more than 8) trainings and order them such that your first choice is on top. You can use drag & drop to move the elements on the left to the box on the right and order them.

Trainings for Japanese people
_____ Language training: English (5)
_____ Language training: Japanese (6)
_____ Language training: German (7)
_____ Cultural training: On differences in body language (8)
_____ Cultural training: On differences in communication behavior (9)
_____ Cultural training: On differences in decision-making (10)
_____ Training on regulations: Labor regulations (e.g. on holidays, overtime work etc.) (12)
_____ Training on regulations: Privacy/data protection regulations (13)
_____ Training on regulations: Other regulations (14)
_____ Training on advantages/disadvantages of standard software and custom-built software (15)
_____ Training on characteristics of the Japanese/German IT market (16)
_____ Training on characteristics of the Japanese/German IT industry (17)
_____ Training on differences in client-supplier relationship in Japan and Germany (18)

_____ Training on differences in project management in Japan and Germany (19)
_____ Other: (20)

Q49 (continued from the previous question) b) Which trainings would you like the Germans to take? Please choose at least 3 (but no more than 8) trainings and order them such that your first choice is on top. You can use drag & drop to move the elements on the left to the box on the right and order them.

Trainings for German people
_____ Language training: English (4)
_____ Language training: Japanese (5)
_____ Language training: German (6)
_____ Cultural training: On differences in body language (7)
_____ Cultural training: On differences in communication behavior (8)
_____ Cultural training: On differences in decision-making (9)
_____ Training on regulations: Labor regulations (e.g. on holidays, overtime work etc.) (11)
_____ Training on regulations: Privacy/data protection regulations (12)
_____ Training on regulations: Other regulations (13)
_____ Training on advantages/disadvantages of standard software and custom-built software (14)
_____ Training on characteristics of the Japanese/German IT market (15)
_____ Training on characteristics of the Japanese/German IT industry (16)
_____ Training on differences in client-supplier relationship in Japan and Germany (17)
_____ Training on differences in project management in Japan and Germany (18)
_____ Other: (19)

Q50 How useful do you think the following points are for facilitating collaborations between Japanese and Germans?

	Not useful (3)	Hardly useful (4)	Somewhat useful (5)	Useful (6)	Very useful (7)	n/a (8)
Using employees as “cultural bridge" / "communication bridge” (e.g. a Japanese employee sent from the Japanese HQ to the German subsidiary to facilitate communication) (4)	❍	❍	❍	❍	❍	❍
Kick-off meeting in person (in the situation that team members are otherwise distributed over Japan and Germany) (5)	❍	❍	❍	❍	❍	❍
Frequent business trips (6)	❍	❍	❍	❍	❍	❍
Coordination among Japanese and Germans about when to take holidays (8)	❍	❍	❍	❍	❍	❍
Agreeing on a clear decision-making process which is followed by both Japanese and Germans (9)	❍	❍	❍	❍	❍	❍
Going out together after work (10)	❍	❍	❍	❍	❍	❍
Getting a document with “Lessons Learned” from colleagues who have experience working with ${e://Field/PartnerPeople} (11)	❍	❍	❍	❍	❍	❍
Getting a mentor who has worked with ${e://Field/PartnerPeople} in the past (12)	❍	❍	❍	❍	❍	❍
Team-building activities with both Japanese and German participants in the beginning of a collaboration (13)	❍	❍	❍	❍	❍	❍
Flexible work hours (14)	❍	❍	❍	❍	❍	❍

Q51 (optional) If you have any other suggestion for making collaborations of Japanese and Germans easier, please describe it here:

Q52 Thank you, you've almost reached the end of this survey. Some last questions:

	Yes (1)	No (2)
Can I contact you in case I have questions about your answers? (1)	❍	❍
Are you interested in the results of this survey? (2)	❍	❍
Would you like to participate in this survey's lottery? You can win an Amazon coupon. (3)	❍	❍

Q53 Please enter your email address (only required if you answered "Yes" for at least one of the previous questions:

Q54 (Optional) If you have any comments about this survey, please write them down below.